

# OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

VOLUME VII

NUMBER F

## THE GAGE MEMORIAL

A Report of the Exercises in Connection with  
the Presentation of the Fund for

### THE SIMON HENRY GAGE FELLOWSHIP IN ANIMAL BIOLOGY

TO

CORNELL UNIVERSITY

on the Occasion of the Fellowship Dinner in honor of  
the Sixty-fifth Birthday of

PROFESSOR SIMON HENRY GAGE

SATURDAY, MAY 20, 1916

JULY 15, 1916

PUBLISHED BY CORNELL UNIVERSITY  
ITHACA, NEW YORK







Simon A. Gage

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The border around the portrait is meant to represent in a general way the objects investigated by Professor Gage.

Commencing at the bottom there are shown the microscope and the projection lantern for the work in optical apparatus. The cat and the bones below, represent the papers on cat anatomy and the Anatomical Technology. The tadpoles, toads, and salamanders show his work with the amphibia. The little fish with the large head and fins is the cottus or star-gazer on which his graduation thesis was prepared. The soft-shelled turtle gave the clue to combined aerial and aquatic respiration. The lampreys are given a prominent place because of his numerous papers upon them; the large fish at the top shows the scar where one of the lake lampreys had been attached. The small finger-like bodies in the upper part represent Amphioxus in which glycogen was first discovered in the nerve cells of vertebrates. Finally, as a general background, ova and various tissue cells are shown.



## PREFATORY NOTE

**I**N 1908 Professor Gage retired from the active work of instruction on a service pension from the Carnegie Foundation. His purpose in doing this was to devote his entire time to research. To assist in this the University provided laboratory space in Stimson Hall and granted him a small appropriation. Shortly after his retirement as a teacher, a committee was formed, from his colleagues who had been his former pupils, to secure a fitting testimonial to commemorate his services to the University. After much thought and considerable discussion, it was decided to raise as much of a \$10,000 fund as possible for the establishment of a university fellowship in animal biology to be known as the Simon H. Gage Fellowship. It was felt that such a testimonial would be enduring in character and serve as a permanent tribute to the marked ability he has shown and the high quality of the work he has rendered to the university. To this end his former students and friends interested in his work were solicited. A sufficient sum has been realized, which, with accrued interest, will, in the course of some years, bring the total to the amount desired.

On May 20, 1916, Professor Gage reached his sixty-fifth year, a time which seemed appropriate for the presentation of the fund to the university and for offering felicitations for the great work he has accomplished. The exercises in connection with this occasion were in the form of a fellowship dinner held at Prudence Risley Hall. More than one hundred were present, including friends from the trustees and faculty of the university and a number of former students from out of town. Numerous letters and telegrams, all paying their meed of tribute, were received from friends and old students who were unable to be present.

In a note relating to the exercises, President Schurman wrote as follows: "The addresses given at the Gage dinner should certainly be preserved. I do not know when I have heard so many excellent addresses with such good matter, such good form, such good taste, and such uniform brevity."\*

### \*CONNECTION OF SIMON HENRY GAGE WITH CORNELL UNIVERSITY

He entered the university in 1873 and graduated in 1877 with the degree of B.S. in Natural History. This course was selected because it was especially designed for those intending to become physicians or teachers. It contained a relatively large amount of study and laboratory work in the physical sciences, and in all branches of the natural sciences (anatomy, zoology, comparative anatomy, physiology and hygiene, botany, and geology). The time needed for the extra attention to these subjects was gained in part by the added entrance requirements of some Latin and Greek and advanced mathematics.

During his entire undergraduate life he was student assistant in the "Anatomical Department" (physiology and hygiene, zoology and comparative anatomy). From his natural gifts in teaching shown in his undergraduate days, the head of the department (B. G. Wilder) urged him to give up the profession of medicine for that of teaching, and this was done.

Positions held in the university: Instructor in microscopy and practical physiology, 1877-1880; Assistant professor of physiology and lecturer on microscopical technology, 1881-1889; associate professor of physiology, and lecturer on microscopical technology, 1889-1893; associate professor of anatomy, histology and embryology, 1893-1895; professor of anatomy, histology and embryology, 1895-1896; professor of histology and embryology, 1896-1908; professor of histology and embryology, emeritus, 1908-.

In 1908 he retired on a Carnegie allowance for the purpose of research. At the time this privilege was granted and subsequently when provisions were made by which the researches could be carried on under the most favorable conditions the following resolutions were passed by the university trustees:

Prof. S. H. Gage,  
Ithaca, New York.

January 15, 1908.

Dear Sir:

I beg to advise you that the Executive Committee at its meeting yesterday, took the following action:

*Resolved*, That in granting Professor Gage's request to retire from his professorship in Cornell University at the end of the academic year, in order that he may devote himself to research as a service pensioner of the Carnegie Foundation, the Executive Committee affirm the conditional action taken by the Board of Trustees on April 28, 1906, and at the same time in their own behalf and on behalf of the Board express deep regret that the instructing staff of Cornell University is to lose in the activity and energy of middle life a professor so capable, so well trained, so skilful in teaching, so laborious and so devoted to his work, and so highly esteemed by his colleagues and by his students, who in common with the Trustees will rejoice that Professor Gage's connection with the university will not be completely severed, and that he is still to remain amongst us as an exemplar of disinterested devotion to truth engaged in the enlargement of human knowledge. Further *resolved*, that the President make application to the Carnegie Foundation for a service pension for Professor Gage."

Yours very truly,

CHARLES D. BOSTWICK, *Assistant Secretary*.

Office of the President  
Carnegie Foundation for the Advancement of Teaching,  
New York, Feb. 7, 1908.

President Jacob Gould Schurman,  
Cornell University,  
Ithaca, New York.

President Pritchett in reporting the granting of the Carnegie allowance to Professor Gage says: "In communicating this action the Executive Committee [of the Carnegie Foundation] desires that you will extend to Professor Gage the assurance of the high esteem which the Executive Committee has of his work in research, and their best wishes for many years of fruitful work in his chosen field."

Professor S. H. Gage,  
Ithaca, N. Y.

April 1, 1908.

Dear Sir:

I beg to advise you that the Executive Committee at its meeting the 30th ult. took the following action, viz.:—In accordance with the action by the Trustees of April 28th, 1906, it was

*Resolved*, That at the close of the present university year, Professor Gage, as Emeritus Research Professor, should retain the private laboratory now in use by him on the first floor of Stimson Hall, together with, as stated in Professor Gage's letter, the material, the histological and embryological series collected by him, and prepared by him or under his supervision in vacations during his active service in the university, and for the purposes of his personal investigation, the same to remain in his sole charge, and be inventoried annually by him, together with any material and apparatus hereafter purchased for carrying on his researches, and all preparations and series hereafter prepared by him, or purchased for the purposes of his researches. All the balance of the property of the Department of Histology and Embryology is to be turned over to the new professor in charge of the department.

Yours truly,

C. D. BOSTWICK, *Assistant Secretary*.

Professor S. H. Gage,  
Ithaca, N. Y.

June 19, 1908.

Dear Sir:

I beg to advise you that the Board of Trustees at its meeting the 18th inst., took the following action, viz.:—

"On the nomination of the President, S. H. Gage was elected Professor of Histology and Embryology, Emeritus.

*Resolved*, That, though the university has no endowments for research, and its revenues are already pledged for the educational work it has in hand, it is nevertheless the ardent desire of the university to encourage research and investigation, and as an expression of appreciation of Professor Gage's self sacrifice in giving up his salary and accepting a Carnegie retiring allowance of half the amount in order that he might devote himself exclusively to scientific investigation, the Trustees vote, and they do hereby vote, the sum of \$500.00 in augmentation of his retiring allowance to Professor Gage for the year, 1908-1909."

Yours truly,

C. D. BOSTWICK, *Assistant Secretary*.

This allowance was granted each year until at 65 he participated in the university pension. In addition, a sum of \$250.00 was granted annually for the purchase of specimens, apparatus, etc., for carrying on his researches.

# THE ADDRESSES

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## PROFESSOR GAGE: THE SCIENTIST

B. F. KINGSBURY

**I**N RESPONDING to the topic assigned me, I desire to state at the outset that the keen pleasure that I feel in having a part in honoring our guest of the evening on this his birthday, is tempered by some apprehension on my part. You see from the program that the wish of the Scotch poet—to see ourselves as others see us—is to come true in his case. A reflection of himself as mirrored in the minds of his colleagues is to be held before him. Were he alone with us, or were he absent, the task would be easy, but as it is I fear there is danger of bringing a blush or a flush to his cheek.

To facilitate the exposition of his life and character, we have, you see, a little worse than quartered his being, and I confess I do not find it easy in the dissection that is here outlined, to pass the knife cleanly through between Gage the Scientist, and Gage the Man, the Teacher, the Friend. Doubtless there are individuals in whom the plane of cleavage is clearly demarcated, but certainly in the life work of Professor Gage, the heart and the mind, the home and the laboratory, instruction and investigation have been so interwoven that Gage the Scientist merges into Gage the Man, and his character dominates the whole.

Furthermore, it is hard to consider him apart from his time and place; man is a creature of, as well as creator of his environment. Professor Gage came to the University in 1873 and almost from the beginning entered into his life work here as teacher and investigator. The year 1859 had seen the publication of Darwin's origin of Species; 1860 and 1861 had been epochal years on other sides of pure and applied biology and medicine. The sounds of the battle for a unitary interpretation of life were still echoing and the broader meaning gave new interest to its investigation. He came to an institution but five years old, and into a department representing almost all there was of animal biology in the University at that time: a department rich in enthusiasm and keenly alive to the new impetus stirring in the life sciences, but a department poor in material equipment, almost without apparatus, with no laboratory space, without a single microscope.

The broad outlook on biological problems Professor Gage ever carried with him, and in the paucity of means of attacking the problems that were pressing, he found both his duty and his opportunity.

Clearly, he early appreciated—perhaps partly by circumstances was compelled to appreciate—the fact that science can advance only through the perfection of instruments and methods of precision. The majority of his early papers dealt with methods of microscopical or anatomical work, and centered in his book on the Microscope and Microscopic Methods which first appeared in 1881 and is now in its twelfth edition—the only adequate textbook in English on the microscope as an instrument of biological research.

That instrument of scientific research which I am sure he regards as the most important to perfect—the living one, the student of future promise—lies outside the territory assigned me. I cannot forbear mentioning, however, the keen joy Professor Gage ever felt in the discovery of the student of exceptional ability and insight: a joy fully partaken of by Mrs. Gage who was his helpmeet in all his life's endeavors. The one cloud that casts a shadow on this evening's pleasure is that she who had looked forward to this occasion with such happy anticipation is absent.

While Professor Gage has so fully appreciated the importance of a perfected technique for achievement in science, his record shows that he realized that microscope and method are but means to an end,—the revelation of life's secrets. Of the one hundred and sixty or so titles of papers, books, reviews, and biographic sketches from his pen, fifty-two are devoted to the microscope and microscopic or other methods; of the remainder the majority deal with biological problems. Some of them are contributions in the fields of physiology, histology or embryology; a number we may style zoological or general biological, others anatomical. The forms of life, likewise, in which he sought solution of the problems on which he was working are varied; many of them were woven by Miss Whitman into the frame that borders his likeness here; they range from a lowly fish to man. His papers ascend from the description of a minor detail of bodily structure to a discussion of inheritance.

His work thus has been broad, and has brought him merited recognition from the scientific world. He was twice President of the American Microscopical Society and twice presided over the meetings of the Zoological Section of the American Association for the Advancement of Science. He is one of the founders of the *American Journal*

of *Anatomy* and one of its editorial board. He is also a member of the advisory board of the Wistar Institute of Anatomy and Biology of Philadelphia.

As most of those here present doubtless know, eight years ago he gave up his duties as teacher in order to devote his entire time to research. Since then, a book, on Optic Projection, of which his son, Dr. Henry Phelps Gage, is joint author, and several improvements in laboratory appliances have largely claimed his time, and many problems on which he has been working are still unfinished. I am sure that I voice the feelings of all gathered here when I add to the hearty though conventional wish for many happy returns of the day the hope that the years to come may bring an abundant research harvest, and the completion of his scientific program.

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## PROFESSOR GAGE: THE STUDENT

J. H. COMSTOCK

It is a great privilege to take part in expressing appreciation of the life work of an eminently successful teacher and investigator. But when this teacher and investigator happens to have been your most intimate friend from youth to age, it is difficult to voice this appreciation in public. It savors of indelicacy to praise, on an occasion like this, one who is as intimately associated with you as a member of your own family. On the other hand it is difficult to keep silent.

I have been asked to speak of Gage as a student. This choice was probably made because of our intimate association during his student days. But when I attempt to recall those days I find that my recollections of the characteristics of his youth have been dimmed by the achievements of his more mature life. I see clearly the Gage of to-day; it is not so easy to recall the Gage of more than forty years ago.

In fact the more I have tried to differentiate Gage the student and Gage the master the more convinced I am that the two are one. The same qualities that have made us love and honor our colleague of recent years, were clearly evident in his student days, the geniality of nature, the earnestness of purpose, the devotion to ideals, were as well marked then as now.

You who have watched him as a teacher know that he has counted no effort too great to make sure that the message he had to convey

was clear and accurate, that he never forgot the standpoint of the uninformed student. The same thoroughness and care for details was characteristic of his work as a student.

Having said these things there seems to be little left for me to say. But I am sure that you expect me to narrate some incidents of his student life. This I shall attempt to do, although they may seem trivial after the statement that I have just made.

Our association together began at the outset of his university career, for I was the first student that he met at this University. He had called on Dr. Wilder to make arrangements regarding some entrance examinations; and at the close of the interview Dr. Wilder brought him to my room in the tower of McGraw Hall and made us acquainted, evidently with the idea that the experienced senior could guide the steps of the inexperienced freshman. But this was a freshman that was perfectly competent to hew out his own path. He had a clear idea regarding what he wished to accomplish at the University and was resourceful in finding ways to accomplish it.

Gage the freshman was an independent youth, one not bound by prevailing fashions. He allowed his hair to grow so that it fell nearly to his shoulders, and he wore a sort of military coat, with a narrow stand-up collar, quite different from the coats of his associates.

I do not remember that these peculiarities occasioned any remarks among his fellows. We accepted them as we accept similar vagaries of artists and musicians.

Perhaps they were expressions of an artistic element in his character, for he had been an itinerant photographer. After he entered the University he spent a summer vacation in a neighboring town where he erected his tent and photographed the country folk thus earning means to partly defray his college expenses.

I remember well his telling with delight how he astonished the babies with a horned toad, thus holding their attention for a period sufficient to make the necessary exposure. In those days of the slow, wet, collodion plates, photography was not the simple matter that it is now, when one has only to press a button.

Gage and I have found that we have had many similar experiences; among these is the fact that each of us first heard of Cornell University in prayer meeting, where, in each case, a more zealous than wise clergyman urged the young men in the audience not to go to that godless institution, Cornell University.

Naturally in each case an interest was aroused in the institution to which our attention had been called, that resulted in a study of the institution. And I am sure that, in the case of Gage at least, you will not think for a moment that it was the godlessness of the institution that attracted him to this university.

Gage's interest in natural science was thoroughly founded before he came to the university, and the first public meeting that he attended here was one of the old Natural History Society, where he heard me discuss the habits of bumble-bees. He has confessed to me that he was greatly impressed by the communications that he heard at the meetings of that society and he wondered if he ever would be able to make similar ones. But it was not long before he was playing his part in that learned assembly.

Not only did he prepare communications to the society but he took steps to get all the good possible out of this work. A private critic club was formed consisting of Gage, Trelease, and Hine, and when one of their number presented a paper before the society the others took careful notes, and afterwards in private commended or condemned the matter and the manner of presenting the paper.

Gage early determined to devote himself to the extending of the boundaries of knowledge. He confided to me, while he was yet a freshman, that when he graduated he was going to go to Oregon, or some other remote place, where there would be opportunities to discover something new regarding the fauna. Evidently he discovered later that his predecessors had not exhausted the opportunities for research in this part of the world. But the fact that caused him to give up the dream of going to the Pacific coast was the discovery of the smallness of the libraries of that region at that time, as was shown in a report of the Commissioner of Education to which I called his attention.

His appreciation of the importance of a good library to a scientific worker was early acquired. At the beginning of his career he became an assistant in Dr. Wilder's laboratory. And as Dr. Wilder kept his library in this laboratory, and gave Gage permission to use it freely, he soon learned the value and use of books. He learned as a freshman, what we have often found difficult to teach our graduate students.

He had in those days the joyous nature and the hearty laugh that has been so characteristic of his mature years. But there were times when the struggle to make ends meet financially became depressing.

When the limit of endurance was about reached he would come to the room occupied by Mandeville and me; and "Mandie" would sing, with that heavenly voice which some of you remember, an old ballad, suggested by the legend of Bruce, concerning the spider that continued to try to fasten its thread in spite of many failures. The refrain:

"What is the use of repining  
For to-morrow the sun may be shining  
Although it is cloudy to-day."

never failed to dispel the gloom.

While Gage had a very high appreciation of the charms of the residents of Sage College, he evidently felt that it was best for him to keep clear of them. And so thoroughly did he do this, that his aloofness became a matter of comment among the young ladies of that hall.

It was natural, therefore, that a flurry of excitement passed through the Sage College delegation in chapel one Sunday when Gage and Miss Anna Botsford were seen singing from the same hymn-card (we had hymn-cards then, not hymn-books). Of course the young ladies called upon Miss Botsford for an explanation, which was easy to give. When the usher seated Gage next to her, she concealed her hymn-card, so that when the congregation arose to sing she had no card, and Gage was a good sport and rose to the occasion.

I recall an illustration of his devotion to his scientific studies while yet an undergraduate. At the beginning of the summer vacation of 1876 he had just about money enough to enable him to make a short visit to the Centennial Exposition at Philadelphia. But if he made that trip he would be obliged to devote the remainder of the vacation to earning money, and there would be no chance for study.

On the other hand, if he remained in Ithaca and lived frugally, he could devote the entire summer to study. He had become interested in Huxley's work on the crayfish and wished to make a more thorough study of this animal than would be possible while carrying on the regular work of the academic year.

Here were two attractions, the glories of the Centennial Exposition on the one hand and the delight of unraveling the structure of the crayfish on the other. The study of the crayfish was the more powerful attraction.

I had the good fortune to work with him during a large part of the summer (that is, until I could no longer resist the attractions at

Philadelphia) and there was never the slightest indication that he felt that he had not made the wiser choice.

He had an opportunity, however, to play a minor part in the great celebration of that year. The citizens of Ithaca had arranged for appropriate exercises on July 4th and the signal for beginning them was to be given by the university bells.

Midnight of July 3d found Gage perched on a beam next the big bell, and at the proper moment he gave the signal, and so vigorously and continuously was it given that I, who was in the story below waiting to ring the chimes, could barely hear the booming of the cannon in the valley.

One of the most potent factors that tend to assure the success of an investigator is a belief in the importance of the subject investigated. Such a belief is strikingly characteristic of Gage's attitude to his work, and was the case even in his undergraduate days. I remember that when he was studying the nest-building habits of the Cottus, which was the subject of his graduating thesis, he wondered that the remarkable habits of this little fish had not been described, and felt that there must be many ichthyologists at work on them at that moment. Eagerly he scanned the journals as they appeared to make sure that his discovery had not been anticipated. And I do not think that he ceased to be anxious until his results were published.

Among the exciting episodes of his undergraduate days was the capture of the camel, which is now a part of the zoological collection of the university. Of this hunt for big game I know nothing personally. But I remember that a rumor came to the university that somewhere near Seneca Lake a *Camelus dromedarius* was roaming about. At that time Dr. Wilder was collecting brains of mammals for Agassiz (this was before he collected brains for himself) and he became greatly excited at the possibility of securing a specimen of an animal so rarely found wild in this fauna. To him it seemed the obvious thing to do to outfit Gage with a bottle of chloroform and a dray and tell him to produce the carcass of the camel. He had confidence in his assistant's resourcefulness and no doubts of his success, and in this he was not disappointed.

In spite of the fact that the beast was found not to be feral and that there was a financial claim to be satisfied, and in spite of the fact that it did not drop asleep at the first whiff of chloroform, there soon appeared on the campus a triumphant procession headed by Since-

baugh's dray upon which was the carcass of the camel and astride of it Eugene Corson, waving his hat.\*

I will not dwell longer upon the incidents of that period of our friend's life. For although these happenings loomed large then, when seen through the perspective of forty years they are greatly reduced in size.

But to me they are not trivial. I see in them evidences of a strong character which has merely matured into that we now so greatly admire.

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## PROFESSOR GAGE: THE COLLEAGUE

A. T. KERR

To be permitted to speak upon this occasion and to offer this slight tribute to Professor Gage as a colleague, I regard as a very special honor.

The toastmaster has pointed out how many of Professor Gage's colleagues in the biological sciences have been his former pupils. As an example of how this has come about, may I be pardoned then for being somewhat personal and explaining at the very beginning how great is my debt to Professor Gage? As a student in the university here, I took most of his courses. When I entered medical college, because of the character of this special training, I obtained my first teaching opportunity as a student assistant in histology. This led to my adopting teaching as a profession, and anatomy, in which also my first training had been with Professor Gage, as a life work. Later when the call came to return to my alma mater as a teacher in my chosen field, Professor Gage's presence here was no small factor in my decision.

For a quarter century, I have known him, as a student, as a graduate, as a teacher, and lastly as a colleague; and, in the last relation, it has been my great privilege to be most closely associated with him for the past sixteen years. For, although Professor Gage chose some eight years ago to retire from active teaching and to

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\*For the expedition after the camel Mr. Gage had as companion and very efficient helper, a sophomore, Richard W. Corwin, who since that time has played a large and honorable role in life as the chief surgeon of the Colorado Fuel and Iron Company; his large heart and constructive mind has also done much to make Americans out of the children of the heterogeneous elements making up the population of that whole mining region. Dr. Corwin's activities with the camel did not cease with the hunting expedition, for later he became taxidermist and mounted the skin for the museum where it still looks forth, in the quizzical camel way, upon the multitudes of visitors that come to the university.

devote his whole time to scientific research, most fortunately for us he has continued to occupy his private laboratory in Stimson Hall, that magnificent biological building, which was constructed so largely on his design. Although retired from active teaching and devoting his time to investigation, he has continued as a colleague to inspire us with his own enthusiasm and with a deep loyalty to the highest ideals of scientific truth, and by his industry has stimulated us to greater efforts.

More valued even than his example as the ideal teacher and devoted investigator is his service to his colleagues as a counsellor. For by his kindness and sympathy he has continued to draw us all to him for counsel and advice, which has been most freely given, not only upon scientific subjects but also, especially in time of stress and trouble, on personal matters. Bacon says, "The greatest trust between man and man is the trust of giving counsel" and this service is most especially prized from a man of such sterling character.

To you, his colleagues, students, and friends, it is unnecessary for me to speak of his many fine qualities, these you all know, and by those of us who have been privileged to be his colleagues they are appreciated many times over.

I consider myself most fortunate to be able to be present tonight, and to extend to you, Professor Gage, on behalf of your colleagues, greetings and congratulations.

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## PROFESSOR GAGE: THE FRIEND

THEOBALD SMITH

Dr. Smith was unable to be present but sent the following letter which was read at the appropriate time:

It is with great regret that I have given up the hope of coming to Ithaca and joining with you in celebrating the sixty-fifth anniversary of our beloved teacher and friend. I say teacher and friend, for it is for his superior qualities in both capacities that we all owe him a heavy debt of gratitude which has been rolling up ever since, year after year.

That we love him requires no emphasis at this time. His life work is of more than personal significance, however, for it is an illustration of what the true teacher should be. With insistence on productivity in research as the sole indicator of the teacher's value, there

is apt to be lost the generous, unselfish out-giving of the teacher's best to his students. Unless the scholarly productivity we are looking for is associated and intimately linked with the teacher's work as such, the teacher himself looks upon teaching as a secondary performance and his efforts become directed to finding out with how little contact with students he can get on.

We know that Professor Gage was always there, always ready to be interrupted, to guide, and steer, and chide if necessary, to take no privileges of seclusion for himself. His life among his pupils was not periodic or orbital but continuous.

We all know him as a friend. His heart was big enough to take in many friends, and though each one of us may have felt that he was specially favored, it is his life that teaches us the lesson that friendship is strengthened rather than weakened by its inclusiveness.

Professor Gage as a personality has had a great influence in my life. It was he who was largely responsible for turning me towards biology. Inasmuch as we cannot carry on experimental control lives to find out whether the one we are living is or is not the one best suited to our capacities I am unable to state whether he did the right thing. How many other careers rest upon his shoulders I will not attempt to speculate upon. Each one may this evening get up and confess for himself.

To influence a young mind requires a combination of qualities that not many possess. Such a teacher inspires faith in his fellow men, confidence in one's capacities. He radiates an optimism which throws its light well ahead over the path we have been encouraged to take.

In closing this brief, inadequate expression of affection for our friend and teacher I am hoping that at least some of us may repeat this coming together in his presence on the seventieth, the seventy-fifth, the eightieth anniversary, and so on *ad infinitum*.

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## PROFESSOR GAGE: THE TEACHER

G. S. HOPKINS

Soon after it became known that Professor Gage was about to retire from active service in the university some sensitive souls heard in the vocal silence the whisper that this occasion would most admirably serve the purpose of signaling, in some fitting manner, the

esteem in which Professor Gage is held by his former students, colleagues, and friends.

The outcome of this silent communion resulted in the project now so well under way that its ultimate success is an assured certainty. At the time alluded to several different plans were discussed but the one finally adopted met with the unqualified approval of all concerned.

The choice of a suitable memorial could not have found a happier means of expression. This fellowship, founded in a spirit of unselfishness and cheerful generosity, designed to be helpful and stimulating to many earnest students and above all to be of a permanent nature, is peculiarly expressive of the spirit and character of the man it commemorates.

Whoever can recall something of his own feelings of helplessness and dismay when confronted by his first piece of independent investigation, whoever has been aided by the suggestions of some wise teacher, will easily recognize the forms on this poetic canvas:

"Far lie the mountain crests against the sky;  
How shall I find my way so lone, so high,  
Without a chart, and with a heavy load?  
Pilgrim, one certain Guide is thine at will,  
Where the road forks, winding o'er plain and hill,  
Whichever way seems easier, choose thou still  
The upper road."

No one acquainted with Professor Gage's painstaking methods of work will for a moment doubt which of the two roads is more alluring to him. The dominant note in all of his teaching, whether in the class room and laboratory or in his scientific publications, is one of originality, of scientific accuracy, and of practical applicability. Characteristic of all his teaching is his habit of clearly illustrating and demonstrating principles and facts under consideration. As a teacher his first care has ever been thoroughly to familiarize himself with his subject, in which process original investigation and research have always played a conspicuous part. To his own clearness of perception and to his lucid methods of presentation may be attributed his exceptional ability as a teacher. No better illustrations of the characteristics just mentioned can be cited than are found in his own unrivaled books on the Microscope and Optic Projection. Birthday as well as fellowship felicitations are alike appropriate at this time. As pupil, assistant, and colleague of Professor Gage it has been my good fortune to have been somewhat closely associated with him for

many years, long enough, I think, to permit the use of these couplets of Whittier:

“Old friend, kind friend! lightly down  
Drop time's snow-flakes on thy crown!  
Never be thy shadow less,  
Never fail thy cheerfulness.”

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## PRESENTATION TO THE UNIVERSITY OF THE SIMON HENRY GAGE FELLOWSHIP FUND

VERANUS A. MOORE

After what has been said of the splendid life and noble work of our friend, Professor Gage, there seems to be little if anything more that one can add unless it be to emphasize the genuineness of what has already been pronounced. We regret exceedingly that, with the rolling of the years, the time has come when he retires. However, concerning nature's sequences in the life cycle of man we have no voice and consequently no occasion to grieve in their fulfillment, for He who ordered them knows best. We rejoice that through the years that have come and gone he has been spared to us and to the world. We are most fortunate to have been among those who have known him as a man, a teacher, and a friend. While at this time we do him honor here, there are—for years there have been and for years to come there will continue to be—large numbers of students of pure and applied biological sciences, scattered throughout the civilized world, who will honor Professor Gage because his achievements have helped to make their work possible.

We have heard tonight of the variety of ways in which his efforts have been of real value in the development and advancement of science. We have been reminded also of the interest he has ever taken in the welfare of his fellow men. Those who have known him realize that this element in his nature has been one of power for doing good. Many men now occupying responsible positions in the scientific world are indebted to Professor Gage for assistance in days of sore perplexity. His solicitude for self-dependent and promising students has touched the heart and given lasting courage to many a weary traveler on the highway toward an education. Not only as students have men and women gone to him for aid but also later in life when burdened with the problems that called for decision and action have they found in him a sympathetic and wise counsellor.

It seemed fitting that the former students and friends of Professor Gage should give some tangible expression of their appreciation of his life and work. To that end it was agreed that the most appropriate token of respect and a memorial that would embody the ideals which have so beautifully characterized his life would be to establish in his honor a dual purpose fund, first to enable worthy students to continue their researches and secondly to enhance the progress of the sciences he loves so much. It was believed that a fellowship in animal biology, which includes the fields of science in which he has been a tireless worker, would best accomplish this purpose.

It is well known and in this case it proved too true that those who specialize in the fields of science in which Professor Gage has specially trained men have become engaged in lines of work interesting in themselves, generally useful to mankind, but not productive of great wealth. Those who follow these subjects know that they must submit to a life of honorable poverty, so that, willing as the hearts have been to give, the storehouses were not always filled. However, the responses to the plan of endowing a fellowship were numerous, generous, and always happy. The contributions to date amount to \$2,667.94\* with pledges still coming in, a sum much smaller than that necessary to found the fellowship. However, the money was given for that purpose. Influenced by the patience and perseverance of him whom we would honor, it was decided to carry out the original plan and eventually secure the object of our desires. It was determined that the money now in hand, and which may hereafter be added to, should be held in trust by the University until it shall accumulate at compound interest a sum sufficient to yield an annual income of \$500. When that time arrives this income shall be awarded annually as the Simon Henry Gage Fellowship in Animal Biology. It will be some years measured by the span of human life before this fellowship will be awarded but measured by the life of the University it will be but the passing of a day. While the income from the amount now in hand would be an acceptable undergraduate scholarship, it would represent only in part the efforts of the life it is to commemorate. We do not wish the good thing that might be now to keep the best thing from the future.

It is a great pleasure, on behalf of the contributors, to present to you, Mr. President, to be held in trust by the University and eventually

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\*Since presenting this sum, unpaid pledges and new subscriptions amounting to over \$100 have been received.

administered as herein specified, this aggregation of expressions of love and esteem for one of Cornell's greatest and noblest teachers. Cornell University established the educational principles for which she has stood because of the sterling qualities of the great men brought here in its beginning as teachers. Inspired by them and guided by the initiative born in the soul of a truly noble man, Professor Gage has lived a chapter in the history of the university that for all time will exert an influence for better scholarship, a deeper humanity, broader and nobler ideals of the purpose of education.

And you, Professor Gage, we all congratulate with all our hearts upon the achievements that are yours, the good you have done, and the success with which you have sailed the professional seas. We rejoice that on this, your sixty-fifth birthday, that time some one has called the old age of youth and the youth of old age, you are so firmly anchored in this beautiful academic harbor, where you are surrounded with friends and where the great university you have served so faithfully will in its appreciation of your loyal work gladly afford you facilities to continue for years, and we hope for years and years, to come, the researches so dear to your life and so helpful to mankind. The young look upon the approach of old age as something of a tragedy; but those who have studied the ways of nature and her boundless compensations as you have done realize, as did the poet, that

"Age is opportunity no less than youth itself,  
Though in another dress,  
And as the evening twilight fades away  
The sky is filled with stars invisible by day."

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## ACCEPTANCE ON BEHALF OF THE UNIVERSITY

PRESIDENT J. G. SCHURMAN

This has been a most delightful and impressive occasion. It is an assemblage of Professor Gage's friends on his birthday for the purpose of expressing to him their congratulations on the attainment of this new mile-stone in his journey through life, and also to assure him of their esteem and admiration, and, I venture to say also, of their sincere affection. The addresses to which we have listened have one and all expressed in most felicitous terms the varied sentiments which possess our minds and hearts; and, while each speaker has had his own distinctive line of approach, the speeches, taken together, con-

stitute a tribute to Professor Gage as comprehensive as it is beautiful. There has been nothing overdrawn, still less has there been anything artificial. I am sure you will all agree with me that the dominating characteristic of all the speeches has been their perfect candor and sincerity.

It does not detract from the spontaneity of the speeches to which you have listened to know, as we recognize from the manuscripts, that all were carefully prepared in advance. They would not have been so good if they had not been. It takes careful previous preparation to make good impromptu speaking. After what you have heard, I must apologize for my random remarks, for I have neither had time to dictate anything in advance nor even to think what I should say. And, while I feel the occasion very inspiring, I am conscious that, under these circumstances, I can not do it justice.

Yet the gentlemen who have been in charge of this programme know how desirous I was of being present and joining in this testimonial of regard and affection to Professor Gage. In order that I might be here, I asked the Medical College, two months ago, to change the date of its monthly meetings from the third to the second Friday and Saturday in the month.

I yield to none of Professor Gage's friends in the high esteem I entertain of the man and his work. You have already heard of his characteristics as a teacher. In this domain of his activity I think I have been most impressed with his conscientious fidelity, his enthusiastic devotion, and his untiring industry on behalf of his students. I recognize the truth of one of the remarks you have just heard that even in his early youth Professor Gage recognized the importance of laboratories and apparatus. As chief executive officer of the University I can testify that he retained this characteristic throughout his teaching years! In preparing the annual budget, I was never permitted to forget the needs of Professor Gage's department. And so long as the university was not bankrupt, how was it possible to resist the demands of so good a teacher and so faithful a servant of the university?

The teaching of university students is a noble function. But it is not the only duty and should not be the only activity of a university professor. It is incumbent especially on the scientist to work for the enlargement of the boundaries of human knowledge. Professor Gage has always been an original investigator. To conquer something from the infinite unknown and add it to the province of the knowable

has been for him at once a challenge and an inspiration. His was a conspicuous place among the devotees of science at Cornell University. Who can tell what inspiration to students his thirst for knowledge and his indefatigable pursuit of it may have been? All this is known to you, his teachers and his pupils, as well as it is to me, and your acquaintance with the scientific fields enables you to describe it better. But there is one bit of circumstantial evidence which I happen to be in a unique position to report.

You know that the Carnegie Foundation, besides providing old-age pensions, originally provided service-pensions to men who had taught twenty-five years, and who it was presumed desired to devote themselves to original research. This provision was maintained for a few years, when the Foundation felt compelled to abolish it. Some scores of professors had been retired under the rule, and the Foundation had committed itself to an eventual expenditure for pensions of over a million dollars on their behalf. Before the trustees took action abolishing this provision, it was deemed desirable to ascertain what proportion of these professors who retired under the service rule were devoting themselves to original research. An investigation was made by the President of the Carnegie Foundation. At the annual meeting of the Board of Trustees at which he stated his results, he declared that of all the professors who had thus retired under the service rule (which, remember, had been instituted for the purpose of encouraging research) Professor Gage of Cornell University was the only one who was engaged in bona-fide scientific investigation.

Is it any wonder that I think of Professor Gage as a scientific investigator as well as a teacher of science? But, Ladies and Gentlemen, with me, personally, Professor Gage comes into a closer relation. He is, and always has been, my friend. I have for him not only esteem and admiration, but the most genuine affection. For all of us, life has its ups and downs, its joys and sorrows, its victories and defeats. I do not suppose that Professor Gage realizes how much, in all these varying circumstances, his kindly brotherly words have meant to me. On this, his sixty-fifth birthday, when he is retiring from the active service of the university, I wish I could tell him. Words, however, fail me, and I can only say:

"My dear Professor Gage, with all my heart I thank you. And I trust that, while you will continue the work of research, remaining in the future, as in the past, an exemplar to all the members of the university, you will also be to me what you have been for so many years in the past, friend, helper, and brother."

## PROFESSOR GAGE'S RESPONSE

My Friends and Pupils who are present, and the larger group who are absent: I thank you. Next to the approval of my own conscience I have always prized that of my students.

All my life I have come close to those who had a hunger and thirst after knowledge. I know and have felt the intensity of that hunger and thirst, and it touches me more deeply than I can express to you that the men and women among whom I have lived and worked for forty-three years have connected with the name of their old teacher a fund to aid in satisfying this hunger and thirst of the spirit at our beloved university.

I suppose every human being has, consciously or unconsciously, some guiding principles of life. Very early in my own career there came, dimly at first, but with the passing years with absolute clearness, three guiding ideas:

1. That in carrying out his high purposes in the world, God is not dependent on any man or group of men; *but He gives every one a chance to help.*

2. That one gets out of life only an equivalent of what is put into it; everything obtained must be paid for to the uttermost farthing.

3. That in man's relation to his fellow men there is but one true guide—the Golden Rule.

I wanted to make the most of my chance in the world by being a physician, and came to this university to get the best possible foundation in science so that the help might be effective; but at that time (1873) biological knowledge was just coming into full appreciation, and the teachers were few; so I became a teacher. This seemed my chance to help.

It is certainly one of the greatest boons on earth to have the chance and the gifts which make it possible to influence and guide human minds; it is likewise the most solemn thing in the world, and I take it that all true teachers, while rejoicing in the opportunity, are also mindful of the responsibility.

It has always seemed to me that, after ability, the greatest single element of strength in a teacher is sympathy, and the surest means of keeping that sympathy fresh and alive is for the teacher to put himself in the place of the beginner to whom everything is new and puzzling, and the meaning and purpose of all so obscure. This he can do if he is a researcher as well as a teacher, and I think it is the only way.

There is of course another reason why a teacher should also be an investigator. The surest way to impart some of the sacred fire and enthusiasm for learning is for the teacher to feel the fires hot within himself from actual contact with new problems and the joy of discovery. From my personal experience I know that kind of fire is very catching.

My supreme ambition as a teacher was to get the students to walk alone; to make them independent. And as they will get out of any subject only an equivalent of the effort they put into it, I felt sure they would be interested if they worked hard, and only when they worked hard. I have never yet seen an interested loafer.

I always started the advanced students on a little research of their own. It surely brings two things: modesty, for it is not so easy as it looks to get new knowledge; and it brings a sense of power as the chaos of conflicting possibilities are reduced to order, and nature answers questions put directly to her. This journey of discovery is endless, and no traveler on that road ever wishes to return. The greatest happiness that life has brought to me has been in watching those whom I helped to start, progress along that difficult path. Some of them have reached heights that I could never hope to attain; and I understand now the look that came into the faces of my father and mother, when, owing to my greater opportunities, I was able to do things which they could not do.

With the perspective of forty-three years to judge by, it is with admiration that I think of the beginnings of biology in this university. There was one teacher who did all the lecturing and demonstrating, was his own stenographer, corrected all the examination papers himself, created a teaching museum, and imbued with the zeal of a new gospel in learning, added laboratory work. With such enthusiasm the work could not help growing, and like all growing things buds appeared and finally became independent departments. It was my privilege to head one of those new departments, but under more favorable conditions than with the beginnings of the original, for new and more adequate facilities were given, and, above all, some of the best trained assistants our country had produced. I wish especially to pay a tribute of appreciation to those fine young men and women who helped me. From their nearness to the students they could often get hold of them and bring out the better spirit when I could not. And they were loyal. No effort was too great if it only advanced the

department. They helped to hold up the standard, and to carry it still higher.

The faculty always seemed to me like a group of older brothers who had but one purpose and that was to help the students fit themselves for life. As time went by I found by personal experience when I needed help that the brotherly feeling was really everywhere.

Naturally one turns oftenest to those nearest, and I cannot refrain from here paying homage to two members of the faculty who affected me earliest and most deeply. Their enthusiasm and tireless efforts to advance knowledge and to start young people on the pleasant and endless road of learning were an inspiration; their friendliness strengthened the heart and fixed the purpose to do likewise. These two men were Dr. Wilder and Professor Comstock.

To the Board of Trustees, to the Presidents and the Acting President of the University, I owe deepest gratitude, for they gave me the chance to work here, and to help make the university a force for good in our country. But to you, President Schurman, under whose administration my department became independent, and whose encouragement and support have been without stint, I owe a debt which I can never hope to pay.

As a final word, I rejoice with a confident heart when I see the able young men who are taking up the burdens of teaching and administration as the older men lay them down. I know the path they follow will carry the university upward. And last of all I rejoice in the growing faith that our noble alma mater will never find her sons and daughters wanting.

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## ABSTRACT OF THE REMARKS OF THE TOASTMASTER

P. A. FISH

Science is made up of trifles, but science is no trifle. Science is knowledge—knowledge of little as well as great things. It has been the little things which have appealed to Professor Gage, those which have required the eye of the microscope to reveal. Biological science without the aid of the microscope would be like the mariner without a compass. Its course would be irregular, uncertain, and unsatisfactory.

Most things worth having are worth fighting for. Students must fight for success, if it is real success; some more strenuously than

others if they are providing their own sustenance while acquiring an education. Some of us are growing nearer and nearer to the time when our own chairs will be filled by younger men; but we can still feel the inspiration of the illuminating example set by Professor Gage in his earlier as well as his later years and can still profit by that example.

To one who is to become a teacher, it is of inestimable value to have studied with a master. This value is enhanced if he is fortunate enough, later, to become the colleague of his teacher. It is doubtful if any other teacher in the university has had so many former pupils for colleagues as Professor Gage. No one has appreciated this more than the former pupils; for they have always felt at liberty to consult and advise with him to their advantage and have never found him wanting in willing and helpful co-operation. Professor Gage has been generous in his friendships. That has been attested by their permanency.

A successful teacher is not perfunctory but enthusiastic in his work. He must love it, and the enthusiasm he radiates will penetrate into the minds of his students and kindle an answering flame to illuminate the by-paths of knowledge. The career of a teacher in science is not completely rounded out without research. Research is the key which unlocks the door of Nature's secrets. These secrets, when exposed, strengthen and expand instruction. As a teacher the qualities of enthusiasm and research have been notably emphasized by Professor Gage.

The river of Time has not yet diluted Professor Gage's energies. We know that, although relieved of the work of instruction, he devotes as much, if not more, energy to research than he ever did. On this anniversary of three score and five years, we tender Professor Gage our most heartfelt congratulations and trust he is but beginning the second chapter of his usefulness.

A life devoted to the advancement and increase of knowledge and to the uplift of others, is its own reward. If added to this it can be shown that from the flame of this torch-bearer other flames have been kindled to maintain and keep bright his ideals, then is the measure full. Such an one can look back upon his work and see that it is good.

"He who brings sunshine into the lives of others cannot keep it from himself."

At the close of the exercises, all arose and sang Alma Mater.

LETTER FROM THE FIRST PRESIDENT OF THE UNIVERSITY UNDER WHOSE ADMINISTRATION PROFESSOR GAGE WAS APPOINTED

My dear Professor Moore:

In the multitude of things crowding upon me in the short time each day which I am able to devote to correspondence, etc., with sundry absences from home at Syracuse and elsewhere, and with preparations for leaving tomorrow to meet an engagement at Philadelphia, I did not recall your kind letter of April 26th regarding the celebration of Professor Gage's birthday until the evening of the day set for that commemoration, and when the evening arrived I was tired out and utterly unfit, indeed, I was really unable to attend.

I lament this for there is no person in the entire University whom I more highly respect than Professor Gage, nor is there one for whom I feel a more sincere friendship and gratitude in view of his devotion to the University interests, and kindness to myself during all these years. There is no one connected with the University who has more reason to be present and to express gratitude for Professor Gage than myself, hence you can understand my deep regret at my inability to attend on Saturday night.

I rejoice to learn from Professor Burr and others that the occasion was a great success, indeed, equaling if not surpassing anything of the kind in the history of the University, and that the feeling expressed toward the Professor was strikingly deep and sincere. Please allow me to say that although absent I joined in it quite as heartily as any other man could do.

Will you please, after reading this, kindly forward it to Professor Gage?

With best wishes for both of you, I remain,

Yours faithfully,  
ANDREW D. WHITE.

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This list does not contain book reviews, and articles on miscellaneous subjects.

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