

partly as pay for arranging specimens in the Munich Museum, they had already acquired, when compared with his small means, a considerable pecuniary value, and a far higher scientific importance. They included fishes, some rare mammalia, reptiles, shells, birds, an herbarium of some three thousand species of plants collected by himself, and a small cabinet of minerals.—ELIZABETH CARY AGASSIZ, in "*Louis Agassiz—His Life and Correspondence.*" *The quotation is from an account of Agassiz's student days supplied to Mrs. Agassiz by Mr. Joseph Dinkel, an artist, who for many years, beginning when he was quite a young man, Agassiz had in his employ.*

AGASSIZ'S "LITTLE ACADEMY" AT MUNICH

"Among my fellow-students [at Munich] were many young men who now rank among the highest lights in the various departments of science, and others, of equal promise, whose early death cut short their work in this world. Some of us had already learned at this time to work for ourselves; not merely to attend lectures and study from books. The best spirit of emulation existed among us; we met often to discuss our observations, undertook frequent excursions in the neighborhood, delivered lectures to our fellow-students, and had, not infrequently, the gratification of seeing our university professors among the listeners. These exercises were of the highest value to me as a preparation for speaking, in later years, before larger audiences. My study was usually the lecture-room. It would hold conveniently from fifteen to twenty persons, and both students and professors used to call our quarters 'The Little Academy.' In that room I made all the skeletons represented on the plates of Wagler's '*Natural System of Reptiles*;' there I once received the great anatomist, Meckel, sent to me by Döllinger, to examine my anatomical preparations and especially the many fish-skeletons I

had made from fresh-water fishes. By my side were constantly at work two artists; one engaged in drawing various objects of natural history, the other in drawing fossil fishes. I kept always one and sometimes two artists in my pay; it was not easy, with an allowance of \$250 a year, but they were even poorer than I, and so we managed to get along together. My microscope I had earned by writing."—*From Agassiz's "Autobiography," quoted by Mrs. Agassiz in the "Life and Correspondence."*

AGASSIZ AT TWENTY-ONE YEARS OF AGE

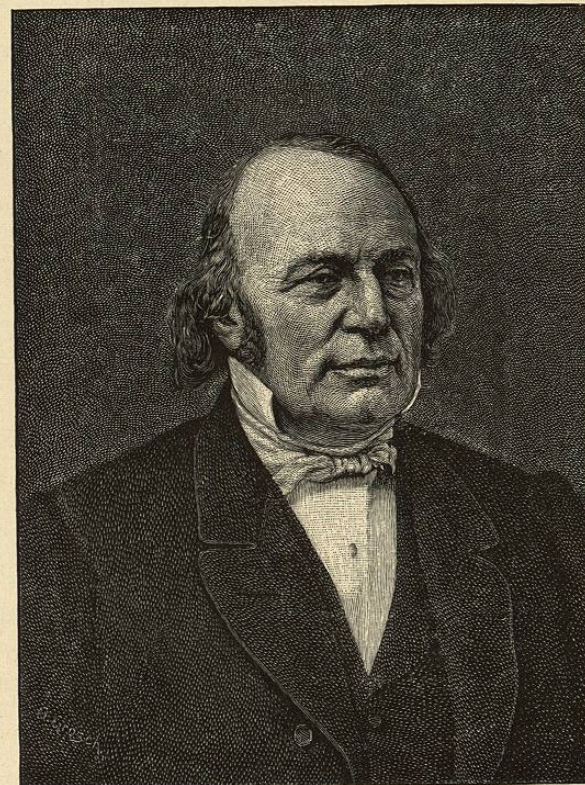
"I cannot review my Munich life without deep gratitude. The city teemed with resources for the student in arts, letters, philosophy, and science. It was distinguished at that time for activity in public as well as in academic life. The king seemed liberal; he was the friend of poets and artists, and aimed at concentrating all the glories of Germany in his new university. I thus enjoyed for a few years the example of the most brilliant intellects, and that stimulus which is given by competition between men equally eminent in different spheres of human knowledge. Under such circumstances a man either subsides into the position of a follower in the ranks that gather around a master, or he aspires to be a master himself.

"The time had come when even the small allowance I received from borrowed capital must cease. I was now twenty-four years of age. I was Doctor of Philosophy and Medicine, and author of a quarto volume on the fishes of Brazil. I had traveled on foot all over southern Germany, visited Vienna, and explored extensive tracts of the Alps. I knew every animal, living and fossil, in the museums of Munich, Stuttgart, Tübingen, Erlangen, Würzburg, Karlsruhe, and Frankfort; but my prospects were as dark as ever, and I saw no hope of making my way in the world, except by the practical pursuit of my profession as physician. So, at the close of 1830, I left the university and went home, with the intention of applying myself to the practice of medicine."—*From Agassiz's "Autobiography," quoted by Mrs. Agassiz in the "Life and Correspondence."*

AGASSIZ AS A TEACHER

In Neuchâtel [where at twenty-five years of age Agassiz had been appointed professor of natural history in the Lyceum] the presence of the young professor was felt at once as a new and stimulating influence. The little town suddenly became a center of scientific activity. A society for the pursuit of the natural sciences, of which he was the first secretary, sprang into life. The scientific collections, which had already attained, under the care of M. Louis Coulon, considerable value, presently assumed the character and proportions of a well-ordered museum. In M. Coulon, Agassiz found a generous friend and a scientific colleague, who sympathized with his noblest aspirations, and was ever ready to sustain all his efforts on behalf of scientific progress. Together they worked in arranging, enlarging, and building up a museum of natural history which soon became known as one of the best local institutions of that kind in Europe.

Beside his classes at the gymnasium, Agassiz collected about him, by invitation, a small audience of friends and neighbors, to whom he lectured during the winter on botany, on zoölogy, on the philosophy of nature. The instruction was of the most familiar and informal character, and was continued in later years for his own children and the children of his friends. In the latter case the subjects were chiefly geology and geography in connection with botany, and in favorable weather the lessons were usually given in the open air. One can easily imagine what joy it must have been for a party of little playmates, boys and girls, to be taken out for long walks in the country over the hills



LOUIS AGASSIZ.

about Neuchâtel, and especially to Chaumont, the mountain which rises behind it, and thus to have their lessons, for which the facts and scenes about them furnished subject and illustration, combined with pleasant rambles. From some high ground affording a wide panoramic view, Agassiz would explain to them the formation of lakes, islands, rivers, springs, water-sheds, hills, and valleys. He always insisted that physical geography could be better taught to children in the vicinity of their own homes, than by books or maps, or even globes. Nor did he think a varied landscape essential to such instruction. Undulations of the ground, some contrast of hill and plain, some sheet of water with the streams that feed it, some ridge of rocky soil acting as a water-shed, may be found everywhere, and the relation of facts shown perhaps as well on a small as on a large scale.

When it was impossible to give the lessons out of doors, the children were gathered around a large table, where each one had before him or her the specimens of the day, sometimes stones and fossils, sometimes flowers, fruits, or dried plants. To each child in succession was explained separately what had first been told to all collectively. When the talk was of tropical or distant countries, pains were taken to procure characteristic specimens, and the children were introduced to dates, bananas, cocoanuts, and other fruits, not easily to be obtained in those days in a small inland town. They, of course, concluded the lesson by eating the specimens, a practical illustration which they greatly enjoyed. A very large wooden globe, on the surface of which the various features of the earth as they came up for discussion could be shown, served to make them more clear and vivid. The children took their own

share in the instruction, and were themselves made to point out and describe that which had just been explained to them. They took home their collections, and as a preparation for the next lesson were often called upon to classify and describe some unusual specimen by their own unaided efforts. There was no tedium in the class. Agassiz's lively, clear, and attractive method of teaching awakened their own powers of observation in his little pupils, and to some at least opened permanent sources of enjoyment.

His instructions to his older pupils were based on the same methods, and were no less acceptable to them than to the children. In winter his professional courses to the students were chiefly upon zoölogy and kindred topics; in the summer he taught them botany and geology, availing himself of the fine days for excursions and practical instruction in the field. Professor Louis Favre, speaking of these excursions, which led them sometimes into the gorges of the Seyon, sometimes into the forests of Chaumont, says: "They were fête days for the young people, who found in their professor an active companion, full of spirits, vigor, and gayety, whose enthusiasm kindled in them the sacred fire of science."—ELIZABETH CARY AGASSIZ.

AGASSIZ'S COMING TO AMERICA

Agassiz arrived in Boston during the first week of October, 1846. He had not come to America without some prospect of employment beside that comprised in his immediate scientific aims. In 1845, when his plans for a journey in the United States began to take definite shape, he

had written to ask Lyell* whether, notwithstanding his imperfect English, he might not have some chance as a public lecturer, hoping to make in that way additional provision for his scientific expenses beyond the allowance he was to receive from the king of Prussia. Lyell's answer, written by his wife, was very encouraging.

LONDON, February 28, 1845

..... My husband thinks your plan of lecturing a very good one, and sure to succeed, for the Americans are fond of that kind of instruction. We remember your English was pleasant, and if you have been practising since, you have probably gained facility in expression, and a little foreign accent would be no drawback. You might give your lectures in several cities, but he would like very much if you could give a course at the Lowell Institute at Boston, an establishment which pays very highly In six weeks you might earn enough to pay for a twelve months' tour, besides passing an agreeable time at Boston, where there are several eminent naturalists. As my husband is writing to Mr. Lowell to-morrow upon other matters, he will ask him whether there is any course still open, for he feels sure in that case they would be glad to have you. Mr. Lowell is sole trustee of the Institute and can nominate whom he pleases. It was very richly endowed for the purpose of lectures, by a merchant of Boston, who died a few years ago. You will get nothing like the same remuneration anywhere else. . . .

Lyell and Mr. Lowell soon arranged all preliminaries, and it was understood that Agassiz should begin his tour in the United States by a course of lectures in Boston before the Lowell Institute.—ELIZABETH CARY AGASSIZ.

AGASSIZ AS A LECTURER

Never was Agassiz's power as a teacher, or the charm of his personal presence more evident, than in his first course

* Sir Charles Lyell, the geologist.

of Lowell Lectures. He was unfamiliar with the language, to the easy use of which his two or three visits in England, where most of his associates understood and spoke French, had by no means accustomed him. He would often have been painfully embarrassed but for his own simplicity of character. Thinking only of his subject and never of himself, when a critical pause came, he patiently waited for the missing word, and rarely failed to find a phrase which was expressive if not technically correct. He often said afterward, that his sole preparation for these lectures, consisted in shutting himself up for hours and marshaling his vocabulary, passing in review, that is, all the English words he could recall. As the Lyells had prophesied, his foreign accent rather added a charm to his address, and the pauses in which he seemed to ask the forbearance of the audience, while he sought to translate his thought for them, enlisted their sympathy. Their courtesy never failed him. His skill in drawing with chalk on the blackboard was also a great help both to him and to them. When his English was at fault, he could nevertheless explain his meaning by illustrations so graphic that the spoken word was hardly missed. He said of himself that he was no artist, and that his drawing was accurate simply because the object existed in his mind so clearly. However this may be, it was always pleasant to watch the effect of his drawings on the audience. When showing, for instance, the correspondence of the articulate type, as a whole, with the metamorphoses of the higher insects, he would lead his listeners along the successive phases of insect development, talking as he drew, and drawing as he talked, till suddenly the winged creature stood declared upon the blackboard, almost as if it had burst then and there from the chrysalis, and the

growing interest of his hearers culminated in a burst of delighted applause.

After the first lecture in Boston there was no doubt of his success. He carried his audience captive. He had the rare gift of divesting his subject of technicalities and superfluous details. His special facts never obscured the comprehensive outline, which they were intended to fill in and illustrate.—ELIZABETH CARY AGASSIZ.

AGASSIZ'S SOCIABLE DISPOSITION

In 1854 Agassiz moved to a larger house [in Cambridge] built for him by the college. [In 1848, Agassiz had been appointed Professor of Natural History in the Lawrence Scientific School, Cambridge.] Though very simple, it was on a liberal scale with respect to space; partly in order to accommodate his library, consisting of several thousand volumes, now for the first time collected and arranged in one room. He became very fond of this Cambridge home, where, with few absences, he spent the remainder of his life. The architect, Mr. Henry Greenough, was his personal friend, and from the beginning the house adapted itself with a kindly readiness to whatever plans developed under its roof. As will be seen, these were not few, and were sometimes of considerable moment. For his work, also, the house was extremely convenient. His habits, in this respect, were, however, singularly independent of place and circumstance. Unlike most studious men, he had no fixed spot in the house for writing. Although the library, with the usual outfit of well-filled shelves, maps, large tables, etc., held his materials, he brought what he needed for the evening by preference to the drawing-

room, and there, with his paper on his knee, and his books for reference on a chair beside him, he wrote and read as busily as if he were quite alone. Sometimes, when dancing and music were going on among the young people of the family and their guests, he drew a little table into the corner of the room, and continued his occupations as undisturbed and engrossed as if he had been in complete solitude,—only looking up from time to time with a pleased smile or apt remark, which showed that he did not lose but rather enjoyed, what was going on about him.

His children's friends were his friends. As his daughters grew up, he had the habit of inviting their more intimate companions to his library for an afternoon weekly. On these occasions there was always some subject connected with the study of nature under discussion; but the talk was so easy and so fully illustrated, that it did not seem like a lesson. It is pleasant to remember that in later years, Mr. Ralph Waldo Emerson revived this custom for his own daughters; and their friends (being, indeed, with few changes, the same set of young people as had formerly met in Agassiz's library), used to meet in Mr. Emerson's study at Concord for a similar object. He talked to them of poetry and literature and philosophy as Agassiz had talked to them of nature. Those were golden days, not to be forgotten by any who shared their happy privilege.—ELIZABETH CARY AGASSIZ.

AGASSIZ'S FIFTIETH BIRTHDAY

Agassiz had promised himself that the first volume of his new work [*Contributions to the Natural History*

of the United States"] should be finished in time for his fiftieth birthday—a milestone upon the road, as it were, to mark his half-century. Upon this self-appointed task he spent himself with the passion, dominated by patience, which characterized him when his whole heart was bent towards an end. For weeks he wrote many hours of the day and a great part of the night, going out sometimes into the darkness and the open air to cool the fever of work, and then returning to his desk again. He felt himself that the excitement was too great, and in proportion to the strain was the relief when he set the seal of *finis* on his last page within the appointed time.

His special students, young men who fully shared his scientific life, and rewarded his generosity by an affectionate devotion, knowing, perhaps, that he himself associated the completion of his book with his birthday, celebrated both events by a serenade on the eve of his anniversary. They took into their confidence Mr. Otto Dresel, warmly valued by Agassiz both as friend and musician, and he arranged their midnight programme for them. Always sure of finding their professor awake and at work at that hour, they stationed the musicians before the house, and as the last stroke of twelve sounded, the succeeding stillness was broken by men's voices singing a Bach choral. When Agassiz stepped out to see whence came this pleasant salutation, he was met by his young friends bringing flowers and congratulations. Then followed one number after another of the well-ordered selection, into which was admitted here and there a German student-song in memory of Agassiz's own university life at Heidelberg and Munich. It was late, or rather early, since the new day was already begun, before the little concert was over and the

guests had dispersed. It is difficult to reproduce with anything like its original glow and coloring a scene of this kind. It will no more be called back than the hour, or the moonlight night, which had the warmth and softness of June. It is recorded here only because it illustrates the intimate personal sympathy between Agassiz and his students.

For this occasion also were written the well-known birthday verses by Longfellow, which were read the next day at a dinner given to Agassiz by the "Saturday Club." In speaking of Longfellow's relation to this club, Holmes says: "On one occasion he read a short poem at the table. It was in honor of Agassiz's birthday, and I cannot forget the very modest, delicate, musical way in which he read his charming verses." Although included in many collections of Longfellow's poems, they are reproduced here, because the story seems incomplete without them:

THE FIFTIETH BIRTHDAY OF AGASSIZ

MAY 28, 1857

It was fifty years ago,
In the pleasant month of May,
In the beautiful Pays de Vaud,
A child in its cradle lay.

And Nature, the old nurse, took
The child upon her knee,
Saying: "Here is a story book
Thy father has written for thee."

"Come, wander with me," she said,
"Into regions yet untrod;
And read what is still unread
In the manuscripts of God."

And he wandered away and away
With Nature, the dear old nurse,
Who sang to him night and day,
The rhymes of the universe.

And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more marvellous tale.

So she keeps him still a child,
And will not let him go,
Though at times his heart beats wild
For the beautiful Pays de Vaud.

Though at times he hears in his dreams
The Ranz des Vaches of old,
And the rush of mountain streams
From the glaciers clear and cold;

And the mother at home says, "Hark!
For his voice I listening yearn;
It is growing late and dark,
And my boy does not return!"

—ELIZABETH CARY AGASSIZ.

AGASSIZ'S INCULCATION OF THE IMPORTANCE OF
"LOOKING"

The story of the next three years [1860-63] was one of unceasing but seemingly uneventful work. The daylight hours from nine or ten o'clock in the morning were spent, with the exception of the hour devoted to the school, at the Museum, not only in personal researches and in lecturing, but in organizing, distributing, and superintending the work of the laboratories, all of which was directed by him. Passing from bench to bench, from table to table,