

HARVARD'S BOTANIC GARDEN AND ITS BOTANISTS.

THOSE horse-cars which leave Bowdoin Square, Boston, every half-hour for Mt. Auburn by the way of Garden street, Cambridge, take the visitor nearest to the Botanic Garden of Harvard University, and the residence of the venerable botanist, Dr. Asa Gray. Having passed Harvard Square and the Washington Elm, you leave the car at the Arsenal, and walk up Garden street, following the track which the British soldiers took in 1775 when they started for Lexington and Concord.

The houses along the street are pleasant homes, with wide shrubbery-filled spaces between, and the gravel sidewalks are continuously canopied by maples, ashes, and elms. At the corner of Linnæan street the thirsty vis-

itor halts, and, reaching through the fence, drinks from a tin cup at a spring of the coldest, clearest water in Cambridge. A few steps farther on a low gate, free to all, admits to the garden at the door of Professor Gray's modest house, where wistaria, forsythia, and pipe-vine intertwine their varying greenery, and hang their flowers above the porch.

Altogether, the Botanic Garden covers a space of about eight acres stretching northward from Linnæan street—suggestive name!—between Garden and Raymond. Rather northward of the middle of this tract, a chain of buildings—herbarium, lecture-rooms, green-houses, etc.—extends from the professor's house nearly across to Raymond street, occupying a raised terrace and facing southward. In the rear of these is the less cultivated part of the establishment, where are placed the storehouses and nurseries, while in front lies the garden proper,—a combination of scientific order and picturesque effect that makes one forget that the object is system and instruction, rather than studied confusion or tasteful display.

Up to the beginning of the present century Harvard appears to have given no regular instruction worth mentioning in any branch of natural history. But in 1805 there was founded the Massachusetts Professorship of Natural History, and William Dandridge Peck was formally inducted into its duties; "afterward," says the record, "they sat down to a decent dinner in the Hall." To this professorship was attached a botanic garden, land having been given for that purpose by Mr. Craigie, whose name belongs to a prominent street in the neighborhood, and thus the present garden originated.

According to the sketch in the "Harvard Book," Dr. Peck laid out the grounds that



THE PINES ON GARDEN STREET.

year, and built a single greenhouse out of funds supplied by subscription and by a grant from the State of some wild lands in Maine. In 1810 the professor's house — at present occupied by Gray — was built, and a loan of \$5000 obtained from the Corporation of the University.

At Dr. Peck's death in 1822 the professorship was vacated, but the garden continued in existence. Thomas Nuttall, botanist, ornithologist, and mineralogist, abandoning his occupation in England as a compositor in a printing-office that he might indulge his taste for travel and exploration in this country, and who had already penetrated as far as was then practicable towards the sources of the Missouri and the Arkansas, was brought from Philadelphia and established as curator. To him was assigned such instruction in natural history as he chose to give to such students as chose to have it. Not much, probably, at least in a systematic way; for Nuttall seems to have been even shyer of the lecturer's desk than his predecessor, though, like him, ready with information for those who privately sought it.

The last result of Nuttall's residence at Cambridge was his "Manual of the Ornithology of the United States," in two small volumes, a classic in that department, now most rare and correspondingly costly. Its descriptions are remarkable for a close knowledge of both the affinities and the habits of our birds, together with a highly poetic appreciation of their manners. No one has portrayed so fully their songs, or so charmingly described their domestic life. His preface is one of the most admirable essays in the literature of ornithology. This book, I am told, was proposed and incited by the late Mr. James Brown, one of the founders of the Boston publishing firm of Little & Brown, who took charge of its publication. He was a good friend of Nuttall's and a lover of ornithology.

After ten quiet years at Cambridge the desire for exploration grew strong, and an opportunity for indulging it occurred. Nathaniel Wyeth of Cambridge had crossed to the Pacific and returned by way of the upper Missouri, upon a speculative enterprise. He was about to recross the continent by a more southern route, and offered to collect botanical specimens for Nuttall, as he had done on his former trip. Nuttall, instead, offered himself as one of the party, suddenly left Cambridge, crossed to Oregon and California, visited the Sandwich Islands, and returned by way of Cape Horn in the vessel which had for one of its crew the author of "Two Years before the Mast." Taking up his residence in Philadelphia, he devoted two or three years

to the study of his botanical collections and the publication of the results, edited a supplement to Michaux's "Sylva," and, on the death of an uncle who left him a life interest in a fine landed estate in Lancashire, returned to England. It was made a condition in the bequest that Nuttall should not be absent from the estate above three months in the year; but, by taking the last three months of one year and the first three of the next, he managed to make a six months' stay in this country upon one occasion. He died at his home in 1859, at the age of eighty-three.

A man of very simple ways was Nuttall. The wife of one of his scientific friends, who sometimes entertained him, remarked that in one respect Nuttall was the exemplar of the hero of romance: he always came and went without luggage. For an ornithologist he was very timid with fire-arms, and was never known to fire a gun when it was possible to have it done by others. It is related that in his journey across the Rocky Mountains, in which the whole party had need to be armed, when, upon a sudden danger, guns were made ready for action, Nuttall's fowling-piece was inspected. It was found quite innocent of powder and lead, but stuffed to the muzzle with bulbs of new, or at that time very rare, species. He was doubtless the original of *Dr. Battius*, the naturalist of one of Cooper's prairie-life novels, but the likeness is not well drawn.

To return to our garden; many still remember it as it was left by Nuttall, and as it remained until after the coming of the present professor. Nuttall occupied two rooms in the professor's house, one on the ground floor, from which he cut a special entrance into the garden merely to avoid the chance of meeting anybody at the adjacent front door. For greater seclusion he avoided the stairs, and reached his sleeping-apartment above by means of a trap-door in the floor of the superimposed closets and by the aid of a step-ladder; and a panel, hung on hinges in the door which connected with the kitchen, served for the passage back and forth of a tray upon which his daily food was handed through. Traces of most of these Nuttallian fixtures remain; but the close fence, coeval with the garden, containing Nuttall's special postern gate, was long ago replaced by the present pickets, and an extension of the house did away with his private door.

From 1834 to 1842 a modicum of instruction in botany and other natural history was given, sometimes by the late Dr. Harris, entomologist, author of the classical volume on the "Insects Injurious to Vegetation," and librarian of the University; sometimes by



THE HERBARIUM.

Dr. A. A. Gould, of equal fame as an invertebrate zoölogist of the last generation.

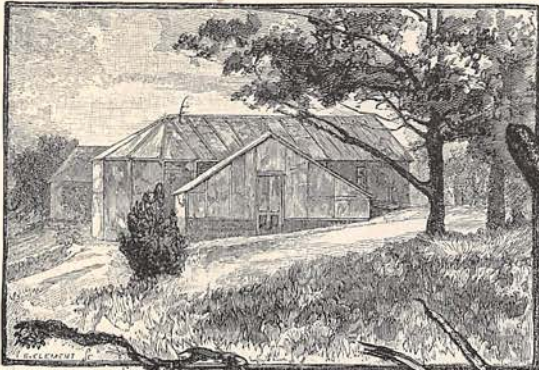
Meanwhile the garden remained under the care of William Carter, who had been gardener almost from the first, and who is remembered as something of a character. Being a Yorkshireman, he had a tendency to aspirate his vowels, and alarmed the late Dr. Worcester, author of the dictionary, whose residence was not far away, by telling him when he was rebuilding his house that he was going to make a hell of it. The L-shaped house still stands, but removed from its old site to a position on Raymond street.

In 1842, however, a new era of prosperity dawned. The times of struggling against poverty and of desultory and partial usefulness were passed, and recognition and growth ahead. That which made this happy future possible were the legacy of Dr. Fisher of Beverly, Massachusetts, endowing a Professorship of Natural History in his name, and the appointment to its chair of Dr. Asa Gray.

Dr. Gray was then thirty-two years old. He had pursued his preparatory studies in Clinton Grammar School, not far from his native place,—Paris, Oneida County, New York,—and at Fairfield Academy in an adjacent county. Then, without entering college, he

had begun medical studies in the College of Physicians and Surgeons of the Western District of New York, and with Dr. J. F. Trowbridge of Bridgewater, New York, received his medical degree in 1831. Although soon appointed botanist of the great United States Exploring Expedition, and Professor of Botany in Michigan University, he did not engage in the duties of either of these positions, but devoted himself to a study of American plants, publishing two elementary books, and beginning, conjointly with Dr. Torrey of New York, the "Flora of North America," intended to be a complete analytic account of the botany of the continent. It was after his return from a visit to Europe to study American plants in foreign herbaria, in the further preparation of this work, that he accepted the Fisher Professorship, and entered upon his residence at the garden.

Classes were at once formed, and botanical instruction regularly given, with such glowing interest that it was soon necessary to build a wing upon the eastern side of the professor's house for the growing herbarium; though long since abandoned for the collections, the light and airy room is still Professor Gray's "study." Its walls are lined with neat plant-cases, now mainly used for the professor's papers. At



THE POND
AND THE
GREENHOUSES.

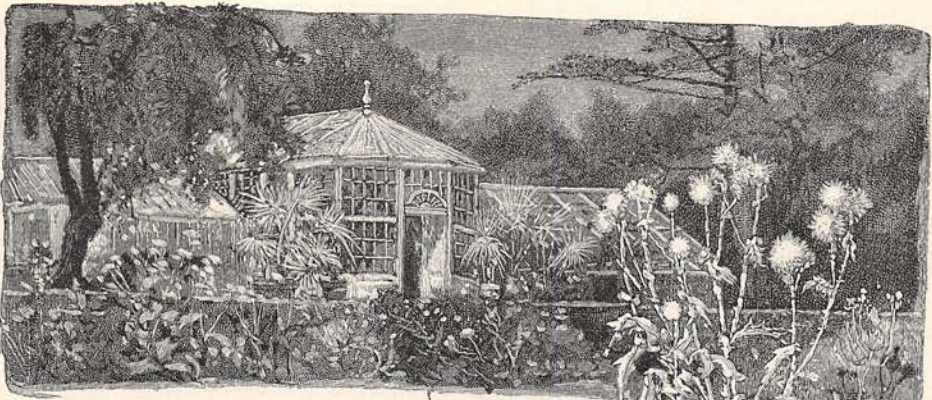
one end of the room a doorway leads into a corridor communicating with the library and the herbarium.

In 1862 Dr. Gray offered to present to the University his herbarium, comprising over two hundred thousand plants, and his library of twenty-two hundred botanical works, if a fire-proof building should be provided. The condition was supplied by the late Nathaniel Thayer of Boston, whose liberality was repeatedly manifested toward Agassiz and his Museum of Zoölogy. It was finished in 1864, at a cost of fifteen thousand dollars, and a subscription fund of ten thousand dollars was raised for its support. Dr. Gray's precious collection of specimens of the American flora was thus made safe and easily accessible to all students, and it accumulated rapidly. This herbarium occupies an oblong room, well lighted, and heated by steam. At the height of a dozen feet a gallery runs all the way round, and on every side from floor to ceiling stand the cases which contain this vast and precious *hortus siccus*. Of course it is all systematized in the most complete way. The sheets upon which the pressed specimens of stalk, leaf, and flower are glued are all of the same size and quality (made specially for the purpose), and the portfolios are precisely similar. Taking the most approved arrangement as a guide, the hundreds of orders are arranged in botanical sequence, while the sub-arrangement of each case is equally careful, and an alphabetical index at once aids the memory and roughly catalogues the collection. More than three hundred thousand specimens repose on those shelves now, and their ranks are continually recruited by gift and exchange. A large proportion of these rare and unique specimens are "types,"—that is, the identical plants from which species new to science have been

described, and which are thus, of course, particularly precious as the unalterable standard for identification, particularly in reference to American species. For several years the collection has been in charge of Sereno Watson.

All about the herbarium walls hang portraits of botanists. In the window recess opposite the door are busts of Sir William Hooker and Robert Brown, at the other end of the room one of De Candolle (*père*), while a life-sized medallion of Dr. Torrey, New York's famous botanist and Gray's associate in much work, occupies a prominent place. Here are an oil-painting and several different engravings of Linnæus, together with a portrait of him which was painted by Madame Andersen, the wife of the late professor of botany at the Royal Gardens in Stockholm, and presented by her husband to Professor Gray. Here, also, are pictures of Sullivant, whose unrivaled collection of mosses is kept separate from the rest as his legacy; and portraits of a score of other specialists at home and abroad.

Passing out of the herbarium into the library, the hungry botanist will find it hard to go farther. No collection of botanical books in this country approaches it, and few in Europe could be of greater practical service. Here are all the original editions of Linnæus, who builded so well that the majority of his names survive, little altered in their application to this day. Then a whole shelf is given to the De Candolles, whose ambitious work was carried on through three generations, and is still continued,—all claiming to be only an elaboration of Linnæus. Publishers fifty years ago found it even harder



work than now to keep pace with discoveries. The files of foreign periodicals are very complete also; for instance, Curtis's "Botanical Magazine," started in 1786 and now edited by Hooker, and Edwards's "Bot. Reg.," as common parlance docks it. Then there is no end of immense books, published by governments or societies at vast expense, and with a sumptuous array of margin, embossed binding, and gilded edge: "Flora Danica," begun in 1766; "Flora Peruviana"; Sibthorp's "Flora Græca"; "Illustrations of the Genus Carex" (the sedges), by Francis Boott; Bateman's "Orchidaceæ of Guatemala"; Martius's "Species Palmarum"; a Chinese botany, illustrated, in several volumes, entitled "Plates and Examinations of the Names and Points of the Things which are Planted"; and a large number of curious old mixtures of superstition and science bound in vellum,—among them a weighty volume by Fuchs, whose name is common to our lips in the flower fuchsia. The library is a separate and fire-proof room erected for the purpose, and exceedingly commodious. In all it contains about four thousand volumes, the value of which could hardly be



AMONG THE THISTLES.

appraised, since it would be impossible to replace many of them.

Having glanced through this crowded mausoleum of dead plants and monuments of re-

search and learning, the visitor steps down into a large room filled with cases, tables, chairs, sections of wood and bark, pressed plants, etcetera, that at once proclaim the

place a laboratory for botanical work; and beyond this is Professor Goodale's lecture-room for systematic botany, where the University classes assemble to receive instruction. All this part of the establishment is comparatively new, and fitted with the most approved appliances for study. The seats in the lecture-room are on a curve, one rank above another as in an amphitheater, the high back of each tier supporting a little desk for the person sitting in the next behind. On the floor a long table runs in front of the windows, where the microscopic dissections can be done in the best possible light.

Until 1874 Dr. Gray himself gave lectures in this class-room. The instruction was always simple, but rapidly uttered, the doctor at the same time keeping his fingers busy with a branch, or nervously handling the specimens on the table before him, and rarely looking at his hearers. It was not easy to take notes fast enough, and he was the least bit impatient of questions. There was, however, no assumption of dignity to chill us, but always an eager, incessant attention to work, which showed how valuable he esteemed time, and a boyish, almost jolly enthusiasm about it all. Yet I imagine a very dreadful severity could have been exercised by this pleasant professor had due occasion arisen. Thirteen years ago, however, Professor Gray gave up the labor of instruction, in order that he might devote himself wholly to the completing of his unfinished works, the long-delayed "Flora" among the rest.

The classes were thereupon placed in the hands of Professor George L. Goodale, a graduate of the Harvard Medical School, who for some years had filled the Chair of Natural History at Bowdoin College. Goodale is a born college professor, having all the requisite gifts and graces both for instruction and management. Wide and encyclopædic in his knowledge, but specially an adept in vegetable physiology, a clear and orderly lecturer, painstaking and patient to the last degree, very genial but very firm, thus bringing work out of the students, he is a real acquisition to that band of distinguished instructors whose ambition is for the prosperity of the University and the advancement of every single one of the youth under their tutelage. To him Dr. Gray has yielded with confidence and pleasure all the instruction in phanerogamic botany. The field occupied by botany is nowadays so large that it is conveniently divided into phanerogamic botany, which treats of flowering plants, and cryptogamic botany, which deals with the lower or flowerless plants. Instruction in the latter is for the most part given in a special laboratory at the Agassiz Museum, by

Professor Farlow. Here the seaweeds, mushrooms, destructive fungi, and the like are studied with the best appliances. The private collection of cryptogamic plants is kept in this room. Professor Farlow pursued his general botanical studies under Dr. Gray, and his special studies in the laboratory of De Bary of Strasburg, and of the lamented Thuret at Antibes. He has a high reputation as an original investigator, and is widely known as an authority in his department. The Chair of Cryptogamic Botany which he occupies is not only the first one established in this country, but the only one we know of specifically so in any university.

During a part of the long vacation the lecture-room and laboratory at the garden are filled with summer students who pursue a special course. The lectures and laboratory work are open to both sexes. The facilities which college seniors and juniors enjoy for prosecuting their work in this department are available to all who attend the summer course; and, as might be expected, the advantages are fully improved by the eager students.

The study of botany here is conducted in the most practical way. As little time as possible is devoted to oral instruction, and less to book-learning, the main effort being to familiarize the student with form and structure by the actual examination and dissection of the plants themselves. Knife and microscope are thus from the first the close adjuncts of note- and text-books.

Until 1879 the garden was for several years in charge of Professor Sargent, and many improvements in arrangement are due to his energy. When, in that year, he was called to assume the duties of the Chair of Arboriculture and of the Arnold Arboretum, its direction here reverted to the botanical department, and is now in charge of Professor Goodale. The garden itself we are next to examine.

From the lecture-room you may pass directly into the conservatory, or, what is pleasanter, you may walk out around the big hickory on the terrace and enter the rounded front of the central greenhouse, where an ambitious bamboo almost fills the doorway with masses of dark-green drooping leaves.

These glass structures have recently in part replaced similar ones erected in 1862. They make very little pretense to architectural glory, but the regulations for preserving the proper temperature, humidity, etc., are upon the most approved plan. There are several distinct compartments, so as to suit the different requirements of the tropical and sub-tropical plants here brought together from all parts of the world. The gaudy ornaments of the florist's



A TANGLE IN THE PALM-HOUSE.

shop, azaleas, camellias, carnation pinks, bouvardias, pelargoniums, and the like, may perhaps be missed; the room they would take is wanted for rarities, and many of these are only of scientific interest. The fourteen hundred species grown insure a goodly supply of blossoms at all seasons of the year, and hundreds of kinds not found in other greenhouses. This not only confers perennial beauty, but has the practical advantage — no small one — of affording fresh material for botanical instruction throughout the winter.

In the central house, the "swell front" and domed roof of which make it somewhat more pretentious than the wings, are feather and fan palms, and other youthful representatives of tropical giants. Here are the traveler's tree of Madagascar, in the axils of the gigantic leaves of which the dusty pilgrim finds a font of pure water preserved through the weary drought; the Indian bamboo, shooting up forty or fifty feet in a year, and pushing through the roof unless continually pruned; a young banyan from India supported on a tripod of side-roots, and dropping a hundred aerial roots like whipcords from its branches, which, if allowed, would support an enormous canopy of foliage upon hundreds of living columns around an aged bole. But it would be impossible to refer

to all or half the interesting plants crowded almost to suffocation in this artificial jungle for lack of the means and room properly to distribute them. They run all the way from the massive scarlet and pink blossoms of the cactuses, recalling to my mind arid Arizona and days in the saddle, to Nepenthe's weeping pitchers and Venus's treacherous fly-trap. Then there are the orchids. Coming from all climates and latitudes, and two hundred and ten in number of species, epiphytal and terrestrial, their ranks are ever adorned, but in early June the fantastic and pretty flowers are especially numerous. Preference is given, however, to plants of economic value, and among these the botanist will recognize, and the visitor be glad to be shown, the natural growth of a large number of the familiar products to be found at the grocer's or apothecary's shops.

Half a dozen steps downward from the terrace and conservatory bring you to the level of the outdoor garden, which has been completely rearranged. By the old scheme of immense plots it was difficult to examine many of the inferior plants from the walks; now, however, these walks, laid concentrically around a pond in the center of the garden with radiating paths at intervals, separate



DR. ASA GRAY. (FROM A PHOTOGRAPH BY NOTMAN.)

series of narrow beds with grass-turf between, in which the plants are arranged in their natural orders. One would think that so arbitrary an arrangement would be fatal to both convenience and picturesque effect, which, it must be remembered, is constantly subordinate to scientific disposition, but really it is not noticeably so. The garden is never quite bare. From earliest spring till late autumn something is blossoming. Beside each growth is thrust into the ground a little tablet containing the scientific and common names of the plant, and its habitat, while to the trees are nailed small tin signs containing a similar "pedigree."

To mention a tithe of the gay flowers that lift their pretty heads and breathe their sensuous odors at high noon of the floral day, is beyond my space or power. Every corner of the world sends representatives, but none outvie in delicacy or richness of tint, or in sweetness of smell, our own wild flowers, of which the garden has a wonderful variety. How easy it must be to study botany in Cambridge!

All day long and every day one may freely bring here treasures of his woodland search, and find their names not by picking them to pieces and laboriously searching among the dry technicalities of a dusty volume, but by comparison with their living brethren. Yet it must be confessed that the visitors are very few, and perhaps half the citizens of this cultured University town scarcely know of the existence of its Botanic Garden.

Down at the corner of Garden and Linnaean streets is one of the prettiest nooks. Here the director has utilized the overflow of the little spring referred to before, to make a wet place where ferns and plants that love moisture grow in comfort beneath the shade of noble trees so carelessly grouped that one forgets they are a "collection." In what used to be waste ground Mr. Sargent built rockeries and planted innumerable spring-blossoming herbs, which come into flower before the foliage of the trees is dense enough to cut off the sun. From the ferns, orchids, lilies, and so on, in this charming corner, the eye wanders



STEMS OF BAMBOO IN THE PALM-HOUSE.

across the garden to a splendid group of American beeches, that stand full comparison with the renowned English trees of the same grand species. The nobility of our other eastern forest trees is well brought out, too, when seen to advantage in cultivated groups,—splendid tulip-trees, hickories, walnuts, butternuts, catalpas, locusts, lindens, elms, maples, ashes, pines, spruces, and hemlocks. Up on the terrace, near the gleaming blue spruce and the queer little sacred pine of the Japanese temple-yards, is an array of “century” plants. I put the word in quotation-marks, because it is doubtful if one of these agaves, of which there are a large number of species, ever did live a hundred years. It is true that death follows the decay of the first blossoming, but if the plant is forced by judicious cultivation, it can be made to bloom when about fifteen years old, or even less. Curiously enough, the more they are starved the better they get on. Adversity fosters their virtues, and century plants ought to be sacred to the fraternity of Bohemians, who never do anything of consequence when they are well off.

In the autumn of 1884 the uncultivated ground in the rear of the herbarium and the greenhouses was metamorphosed. An excavation for a miniature pond was made, hills were thrown up, and suitable places were selected for the wild plants of our fields and forests. Only native plants find their home here, and they are massed so effectively that from the latest snow to autumn frosts there can be found a succession of American herbs and shrubs in flower.

In one corner of this plot devoted to American plants, a few waifs and strays have found a congenial soil; these are the ballast plants and “escapes” which would be weeds if they could once gain a foothold, but as yet they are only casual visitors.

A little pond near Raymond street is surrounded by willows, and is designed to bear a

body of sedges and other aquatic plants; but its sources and drainage are both inadequate, and it is neither successful nor pretty. The only thing of interest about it is the yellow lily, which vindicates Audubon's word that he saw such a one on the Gulf coast,— a statement that has been assiduously denied ever since, on the ground that there was not and

uncannily about it. However, there are enough left everywhere to keep destructive insects well in check, and they are not disturbed.

But, after all, the mainspring and central fact about the garden is Dr. Gray himself. Though now in his 75th year, this kindly professor and wise investigator possesses to an admirable degree the activity and alertness of his younger days, when an expedition with him was a pedestrian feat to be proud of; and he has added to his quick wit and keen perception such breadth and ripeness of judgment, such fruit of large experience as make him not only *facile princeps* among our botanists, but give him foremost rank among the critics of all branches of biological science. From the beginning of his career his name has been associated with the progress of botany in the United States. In his writings, the outcome of untiring industry, "he has shown equal ability in communicating elementary knowledge and in elucidating recondite theory."

Perhaps no attempt at popularizing science was ever more successful than that which took shape in his "First Lessons," where the most abstruse points of vegetable physiology are stated in such a simple, matter-of-fact way as to be clear to the dullest student. In what charming chapters he tells us "How Plants Grow" (*How plants grow gray*, we used to read the title!), and "How Plants Behave,"— little volumes for little people, but brimful of large ideas for older heads. An incessant worker, early and late, at home, in the laboratory, in the street or railway cars, everywhere, Dr. Gray has managed not only to describe more species and clarify more confused classifications in the American flora than any other man, but at the same time to serve as president of various august societies and academies of science, where meetings were to be frequently attended and addresses to be given; to write many notable essays on scientific and critical matters for the different reviews and magazines, largely anonymously; and for forty years to act as associate editor of the "American Journal of Science and Arts." Lately a number of these essays and reviews, mainly referring to the hypothesis of evolution and natural selection as applied to plants, have been reprinted in a volume under the title of "Darwiniana." In England Dr. Gray is looked upon as one of Mr. Darwin's keenest critics, and at the same time most powerful champions.

Notwithstanding all these demands upon his time, and the weight of his college duties, Dr. Gray has found time for a vast amount of studied writing. In 1838, following several previous contributions to botanical liter-



THE BEECHES.

never could be a yellow water-lily! Finally one came to the garden, was planted, grew, and annually asserts itself despite the closet botanists. *Verb. sap.*! In spring thousands of toads are bred in this pond, and for a few days swarm everywhere in countless abundance. Suddenly nine-tenths of them disappear— whither no one knows. There is something



GARDEN CORNERS.

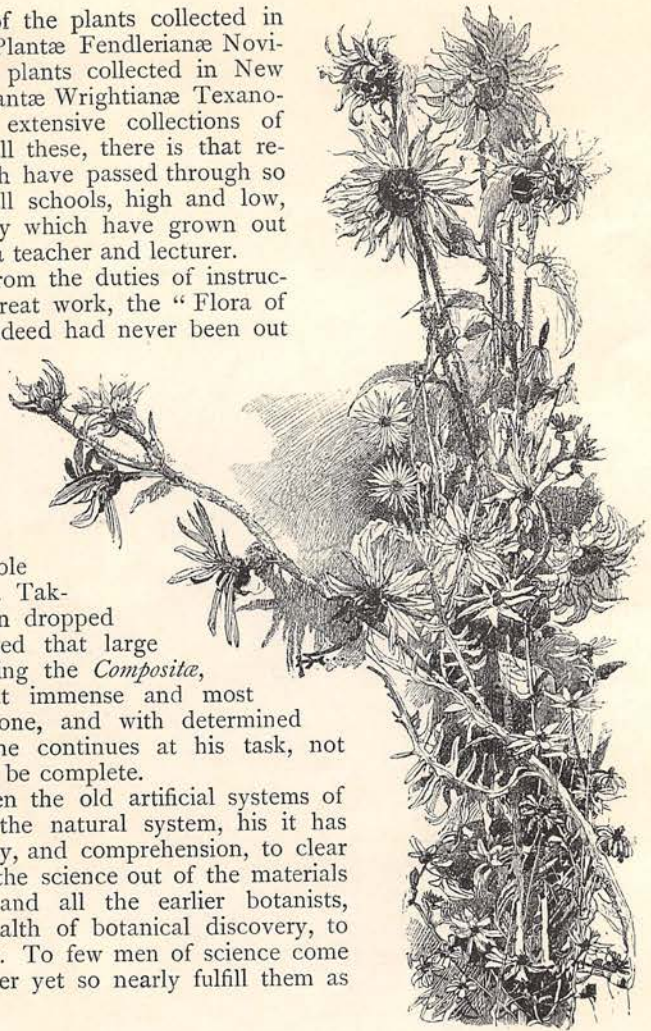
ature, especially one on the sedges, appeared the first part of "The Flora of North America," under the joint authorship of John Torrey and Asa Gray. It was intended to give "abridged descriptions of all the known indigenous and naturalized plants growing north of Mexico." This was published in numbers from time to time, but when half completed was suspended at the end of *Compositæ*, owing to the rapid increase of the material to be studied, and to provide time for the work of instruction at Cambridge, just then begun. How thoroughly it was executed, and, though unfinished, how valuable it is, is known to every working botanist, who turns to "Torrey and Gray" as to an almost infallible authority. Ten years later came the

first volume of "Gray's Genera," the object of which was to figure a typical specimen of one or more species of each genus of North American plants, with accurate analysis. After two volumes containing one hundred plates had been issued, this work also was suspended for the same reasons that induced a discontinuance of the "Flora." Writing on exotic botany with the same power which he shows in discussing our indigenous plants, Dr. Gray's most voluminous, and in some respects important, contributions to science relate to foreign regions, and are mainly contained in the splendid reports of the United States Exploring Expedition under Captain Wilkes. Among other conspicuous works there may be mentioned his "Plantæ Lind-

heimerianæ," giving an account of the plants collected in Western Texas by Lindheimer; "Plantæ Fendlerianæ Novimexicanæ," a description of the plants collected in New Mexico by Fendler; and the "Plantæ Wrightianæ Texano-Neo-Mexicanæ," describing the extensive collections of Charles Wright, A. M. Besides all these, there is that remarkable series of text-books, which have passed through so many editions, and are used in all schools, high and low, in the country—lessons in botany which have grown out of the author's own experience as a teacher and lecturer.

In later years, when relieved from the duties of instruction, he resumed in earnest his great work, the "Flora of North America," a work which indeed had never been out of mind and to which his numerous contributions to American botany had all pointed. The parts already published were now long out of date and needed complete reconstruction; the untouched portion was much of it in a state of comparative chaos, and the whole was sure to demand years of labor. Taking it up where the work had been dropped thirty years before, he first finished that large portion of the *Gamopetalæ* following the *Compositæ*, and then turned to revise that immense and most difficult order. This is now done, and with determined courage and untiring industry he continues at his task, not content to rest till the whole shall be complete.

Coming forward at a time when the old artificial systems of botany were giving way before the natural system, his it has been, by his precision, perspicacity, and comprehension, to clear away encumbrances, reconstruct the science out of the materials afforded by Michaux, Nuttall, and all the earlier botanists, and, adding to this his own wealth of botanical discovery, to recoin the whole with a new die. To few men of science come so grand opportunities; and fewer yet so nearly fulfill them as has Dr. Asa Gray.



Ernest Ingersoll.

A GROUP OF COMPOSITÆ.

TO JOHN G. SAXE.

O GENIAL Saxe, whose radiant wit
Flashed like the lightning from the sky,
But, though each flash as keenly hit,
Wounded but what deserved to die —

Alas! the cloud that shrouds thy day
In gathering darkness, fold on fold,
Serves not as background for the play
Of those bright gleams that charmed of old;

For, from its depths where terrors hide,
There crashed a bolt of dreadful tone;
Scattered thy household treasures wide,
And left thee silent, bruised, alone.

We miss thy song this pleasant May;
And, in the meadows, pause to think:
"What if, amid their bright array,
We heard no voice of Bobolink!"

Yet charms not now his blithesome lay,
Nor flowery mead "in verdure clad."
The world that laughed when thou wast gay,
Now weeps to know that thou art sad.

C. S. Percival.