

At the regular meeting of the Torrey Botanical Club held April 29th, 1873, the following resolutions were presented by the committee appointed for that purpose, and unanimously adopted:

WHEREAS: It has pleased Divine Providence to remove from us by death our honored head, Dr. JOHN TORREY,

Resolved: That while deeply grieving the common loss of all the promoters of his favorite science, we mourn him who in a peculiar manner was our founder, father and friend.

Resolved: That we cherish and prize his memory, inseparably interwoven not only with American Botany—in which he was co-laborer with the earlier pioneers, teacher and helper of nearly all the later investigators, and a leader in the original researches, public and private, of his State and country—but with the growth and coming to maturity of Botanical Science itself. We remember him with affectionate veneration as the occupant of chairs of high esteem and usefulness in several of our institutions of learning; as the incumbent from its establishment of an office of great personal trust under the General Government, in another exacting department of science; as a diligent, honest and humble student of nature; and, above all, as adorned with rare Christian excellence and grace, growing in knowledge and virtue fuller and riper to the last; and departing in a good old age, full of years and content.

Resolved: That we recognize it as our duty and privilege to imitate his excellent and alluring example, to use our utmost effort to promote a living interest in, and provide for the continuance and progress of local and general botanical investigation.

Resolved: That these resolutions be entered upon the minutes of the Club, and that a copy thereof be presented to the family of the deceased.

GEO. THURBER,
WM. H. LEGGETT, } Committee.
ISAAC H. HALL,

§ 31 - Fertilization of *Asarum Canadense*.—In the *Hortus Cliffortianus*, one of the earliest works of Linnaeus, published in 1737, occurs the following passage in reference to *Asarum Europaeum*: "Stamina ante pubescentiam reflexa a pistillo procumbunt, at instante copula eriguntur prius mares alterni sex, uxori communi approximantur, genitalem farinam efflant; absoluta eorum venere et alterni reliqui sex mariti arcte feminam erecti comprimunt et suum pulverem effundunt."

I have found no reference to this curious statement in any later works, and have sought for any record of similar behaviour in our own *Asarum Canadense*. A small patch of the latter plant, established in my garden, has enabled me to watch the progress of the anthesis of its flowers. As soon as the calyx lobes open, the twelve stamens are seen in beautiful symmetry, bent backwards and downwards from the stigma. In this position they all remain for a period varying from 12 to 36 hours, when one or more of the alternate anthers bursts its turgid cells, while its curved filament begins to straighten, and slowly the stamen arises until the fluke-

shaped anther reaches its place in the *sinus* between the lobes of the compound stigma. This movement is soon followed by that of the remaining alternate stamens until all the six recesses of the stigma are occupied. The rise of the stamens is not rapid or simultaneous, nor does any particular order seem to prevail as regards the individual stamens of this set. The interval between the erection of the first and last of the six seems to vary from 8 to 30 hours. In nearly every instance, the anther cells burst as soon as, or before the upward movement begins.

The last stamen of the first set of six now having arisen, an interval elapses varying from ten to nineteen hours, when the remaining alternate stamens begin in like manner to open and slowly arise in succession, and the anthers of these come to rest in contact with the projecting lobes of the stigma. The stamens of this series are slightly shorter than the others, and have sometimes been called the external ones. The interval of time between the first and last of this series is usually not more than twelve hours. The stamens, having now all reached their new position, present a view not less symmetrical than their first appearance, the projecting horns, or filaments, produced above the anthers being all bent forwards towards the centre of the stigma.

Under the ideas which formerly prevailed upon the subject of self-fertilization of flowers, the statement of Linnæus, though needing qualification, is so illustrative that Darwin ought certainly to have given it poetic diction in the "Loves of the Plants." But when we look for special adaptation of parts for the office assigned by Linnæus, we find the anthers of both series of stamens *not introrse*, but *extrorse*—that is, opening outwards and downwards, directly *from* the stigma. Moreover, in almost all cases, the bursting of the cell and the protrusion of the pollen is fully completed before the stamen reaches its erect position. By the time, however, that the anthers of the first series have reached their places *between* the lobes of the stigma, they have become so swollen and so covered with pollen that a few grains almost inevitably come into contact with the stigmatic surfaces. But while slowly ascending to this position, and after reaching it, they certainly are so placed that the visit of an insect could hardly fail to carry away much more of the pollen than can reach the stigma by anther contact. Yet, the flower of this plant is so near the ground, and so often hidden, in fact, by dead leaves, that flying insects could hardly reach it; nor have I detected any visits from these, or from insects of other habits. But I trust that what I have here recorded will lead to further observation and research on this and kindred points.

JOHN H. REDFIELD.

PHILADELPHIA, May 22, 1873.

§ 32. Party-colored Iris.—I saw, yesterday, a curious specimen of the ordinary Iris of cultivation (*Iris Germanica*). The colors—blue and white—were exactly divided upon it. The owner said that his white flowers grew on one side of his garden and the blue ones on the other, and they had never crossed before. Is not this

the result of insect agency? You will notice that each petal or sepal that is colored is divided into two tints by the mid-rib.

PROVIDENCE, June 5th.

W. W. BAILEY.

§ 33. *Apocynum*—No. 5.—I hope some of those who meet with *A. androsæmifolium* this summer will make a microscopical examination of the buds to determine, if possible, the origin of the glands. Schleiden, in his *Botanik*, 1849, has already pointed out the true stigmatic portion of the style, of which he gives a drawing, and also of the glands, p. 494. He does not, however, seem to recognize the dual nature of the latter. In his view the stamen is attached to the style by a secretion of viscine from a tuft of hairs at the top of the filament, and, if I rightly apprehend him, the diaphragm is but the extension of the epidermis of the upper part of the style, upon which epidermis the gland lies, so that he recognizes the gland as distinct from the styles, and, indeed, supposes that, in *Asclepiadaceæ*, the glands originally pertained to the anthers, *ibid.* It will thus be seen that his observations in part anticipate my own. I did not meet with his notice of this plant till after I had published my notes on the same subject.

Schleiden also recognizes that the flower cannot fertilize itself, though he seems not to have known the *modus operandi*. Dr. Darwin, in the *Botanic Garden*, a work which might almost be called a necessary introduction to the writings of his distinguished grandson, gives an outside report of the manner in which the anthers entrap flies, *Vol. II.*, p. 241, as does also Rafinesque in his *Medical Botany*. I understand that Mr. C. F. Wheeler of Hubbardston, Mich., was fortunate enough last summer frequently to find insects, including some *Lepidoptera*, entrapped by this plant. W. H. L.

§ 34. *New Localities*.—Last spring we found the *Trailing Arbutus* (*Epigæa repens*) in the wood bordering the southern shore of the mouth of the Croton River, being the first specimens found in this region.

DR. C. J. FISHER.

SING SING.

Some years ago Prof. Thurber found *Fedia olitoria*, Vahl, at St. Ronan's Well, near Flushing.—Mr. Miller discovered last year at Wading River, in a barley field, a patch of *Matricaria inodora*, L.—I have found this season *Ranunculus multifidus*, Pursh with *Amianthium*, west of Hackensack, and *Cynthia Virginica*, Don, near Huguenot Station on the Staten Island R. R. W. H. L.

LILIUM, L.—*L. Philadelphicum*, L.; N. Y.; Closter, common; *Austin*; Westchester Co.; Bergen Point; Chatham, N. J.; —*L. Canadense*, L.; Hoboken, *Torr. Cat.*; Closter, common, *Austin*; Chatham, N. J.; Glen Cove, *Coles*; Westchester Co. —*L. superbum*, L.; Glen Cove, *Coles*; Astoria; Staten Island; Carlstadt; New Durham, and Orange Co. &c, not near Closter, *Austin*.

ERYTHRONIUM, L.—*E. Americanum* Smith; common; N. Y.

ORNITHOGALUM, Tourn.—*O. umbellatum*, L.; Striker's Bay, *Ruger*; Inwood, *Le Roy*; Closter and Tappan, *Austin*; Yonkers, *Pooley*; abundant on Long Island, in the neighborhood of Newtown, Flatbush, &c., and on Staten Island.

ALLIUM, L.—*A. tricoccum*, Ait.; Closter, common, *Austin*; and Woodside Bowery Bay &c., *Ruger*.—*A. vineale*, L.; common; N. Y.—*A. Canadense*, Kalm; "In fields and meadows." *Torr. Cat.*; meadows, woods! and rocks!!; along the Hackensack in woods, near Tappan in meadows, and along the edge of the Palisades, *Austin*; Passaic Falls, *W. H. L.*; Van Vorst Heights, *Ruger*; Bergen Point.

MUSCARI, Tourn.—*M. botryoides*, Mill.; old places, N. Y. Island, *W. H. L.*; *Le Roy*.

HEMEROCALLIS, L.—*H. fulva*, L.; not uncommon escape; Manhattanville, Maspeth, *Ruger*; Staten Island, Tappan, N. J., Westchester Co., &c.; Closter, *Austin*.

***AMIANTHIUM**, Gray.—*A. muscætoxicum*, Gray; This plant, not hitherto reported from our vicinity, has been found by Mr. G. C. Woolson, and also Mr. Leggett, in abundance near Rochelle Station, on the Midland R.R., a short distance beyond Hackensack. In *Gray's Manual* it comes next after *Veratrum*.

JUNCACEÆ.

LUZULA, DC.—*L. pilosa*, Willd.; Pascack, N. J., *Austin*.—*L. campestris* DC.; common; New York.

JUNCUS, L.—*J. effusus*, L.; common; N. Y.—*J. Roemerianus*, Scheele; Coney Island.—*J. trifidus*, L.; Sands Point, Ulster Co., N. Y., *Austin*, [extra-limital].—*J. marginatus*, Rostkovius; common; N. Y.: Var. *paucicapitatus*, Staten Island: Var. *biflorus*, Rossville, Staten Island.—*J. bufonius*, L.; common: N. Y.—*J. Gerardi*, Loisel; common on Long and Staten Islands, *State Flora*; and probably on N. Y.; Hoboken; Piermont, *Austin*.—*J. tenuis*, Willd.; common; N. Y.—*J. cichotomus*, Ell.; possibly within our limits, but not reported nearer than Shamong Station, D. & R. R. R.—*J. Greenii*, Oakes and Tuckermann; Long Island probably, *State Flora*; Staten Island, *W. H. L.* [Unless my label has got displaced, I gathered this species many years since in the neighborhood of Racket Lake, *W. H. L.*]—*J. pelocarpus*, E. Meyer; Long Island (*J. Conradi*, Tuck). *State Flora*; Red Bank, N. J., *W. H. L.*: Var. *subtilis*, L., Lake Hopatcong, N. J., *Porter*; vid. *Bulletin*, Vol. XII. § 67.—*J. articulatus*, L.; Staten Island, *W. H. L.*, and, no doubt, elsewhere.—*J. militaris*, Bigel.; Suffolk Co., *Allen*.—*J. acuminatus*, Michx., Bergen Point; Astoria; Jamaica; probably quite common; Borders of salt marshes, *Torr. Cat.*: Var. *legitimus*, common.—*J. nodosus*, L.; "in swamps." *Torr. Cat.*—*J. scirpoides*, Lam.; *Austin*, *Le Roy*, *Torr. Cat.*: Var. *macrostemon*; *Torr. Cat.*; Staten Island, *Austin*; Tottenville, *W. H. L.*—*J. canadensis*, J. Gay; common: Var. *longicaudatus*; common: Var. *subcaudatus*; Red Bank, N. J., *W. H. L.*

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

PONTEDERIACEÆ.

PONTEDERIA, L.—*P. cordata*, L.; common; N. Y.: Var. *angustifolia*; Peach Pond, North Salem, Westchester Co., *Mead*.

HETERANTHERA, Ruiz and Pav.—*H. reniformis*, Ruiz and Pav.; S. New York, *Gray's Manual*; common along the Hackensack, *Austin*; and Passaic, *W. H. L.*; Chatham, N. J., *W. H. L.*

SCHOLLERA, Schreber.—*S. graminea*, Willd.; Whippany Creek, near Morristown, *Torr. Cat.*; common along the Hackensack, *Austin*; Croton River, *Mead*.

COMMELYNACEÆ.

COMMELYNIA, Dill.—*C. Virginica*, L.; Inwood, *W. W. Denslow*; Var. *angustifolia*; swamps two miles from Flushing, *Mr. P. Dudgeon, State Flora*.

XYRIDACEÆ.

XYRIS, L.—*X. flexuosa*, Muhl., Chapm.; Locust Avenue, Centreville, L. I., *Ruger*; Glen Cove, *Coles*; Ridgefield, Ct., *Mead*; Closter, common, *Austin*; Tottenville, Staten Island, *W. H. L.*

A curious little *Xyris*, probably the variety *pusilla*, was found this summer on the borders of a pond in the southern part of Hamilton Co.—*X. Caroliniana*, Walt.; Suffolk Co., *Miller*; near Jamaica Pond, *Ruger*; border of pond in Haverstraw Mts., near Sandfield, *Austin*.

ERIOCAULONACEÆ.

ERIOCAULON, L.—*E. decangulare*, L.; very common about Ferrago, N. J., in streams and ponds, *Austin*.—*E. gnaphalodes*, Michx.; common in same locality as the preceding species, *Austin*. *Mr. Merriam* finds these two species at Manchester, and they may attain our limits.—*E. septangulare*, Withering; common.

Organization of the Club.—The final organization of the Club—delayed first by the fraud in the original charter, and subsequently by the illness and death of our loved and revered chief—was finally completed on the 29th of April last, by the election of the following officers:

President :.....GEORGE THURBER.

Vice-President :.....T. F. ALLEN.

Treasurer :.....J. J. CROOKE.

Corresponding Secretary :...JAMES HOGG.

Recording Secretary :.....P. V. LEROY.

Editor :.....WM. H. LEGGETT.

Curator :.....P. V. LEROY.

Executive Committee :.....WILLIAM BOWER, I. H. HALL, JAMES S. MERRIAM, JAMES HOGG, G. M. WILBER.

Finance Committee :.....JAMES S. MERRIAM, F. J. BUMSTED, ABRAHAM HALSEY.

Herbarium Committee :.....P. V. LEROY, M. RUGER, D. C. EATON.

The Club holds its meetings at the Herbarium in Columbia College in the evening of the last Tuesday of every month, July and August excepted, and all botanists, either residing in or visiting the city, are invited to attend; or, if they cannot be present at that time, to call on the President of the Club at 245, Broadway, or on the Secretary at the Herbarium.

One leading purpose in securing a charter and organizing under it was to enable the Club legally to hold such funds as might from time to time be contributed to further its efficiency.

There is present occasion for such assistance in establishing a fund of about three thousand dollars for the permanent endowment of the Bulletin. This is the only periodical in the country devoted to this attractive and important department of science. It has now been published for more than three years, not, we trust, unapproved by the botanical community. If secured an existence, in the hands of the able men who will more and more resort to the vast and precious herbarium of Columbia College, it is hoped that it may become of lasting service to the science. With this expectation, we claim for it a share in the liberality of our countrymen.

On assuming the chair, PRESIDENT THURBER made the following

INAUGURAL ADDRESS.

GENTLEMEN OF THE TORREY BOTANICAL CLUB,

In entering upon the duties of presiding officer, the first assuming that office since the Club was incorporated, it would seem appropriate for me to give a sketch of the past history of our association. When I look for materials I find but few. We have no record of the date of the beginning of the Club* and its growth has been so gradual and its career so uneventful that there is but a brief story to tell.

The few botanists of the city, knowing that they would always be welcome, were accustomed to visit these rooms from time to time, and it sometimes occurred that without any pre-arrangement several happened in on the same evening. At length it was proposed to have a regular evening for reunion in order not only that we might meet the one around whom we all gathered, but that we might have the pleasure of seeing one another at stated times. If I am not in error this suggestion came from Dr. T. F. Allen, whose proposition was readily seconded by others. Our beginning was such a gradual accretion that those of us who were among the original members can hardly tell how it came to be called even a "Club." We came and went, sometimes two and sometimes a dozen, but there was always an informal social gathering.

Early in the informal existence of the Club it was proposed to make a catalogue of the plants of New York and its vicinity. In 1817 Dr. John Torrey presented to the New York Lyceum of Natural History "A Catalogue of the Plants growing spontaneously

* Not later than 1865.—EDS.

within Thirty Miles of the City of New York," and it was thought that a catalogue embracing the same territory would be useful to botanists, and show interesting changes in our local Flora, in the obliteration of some species and the introduction of others.

The members of the Club, if that which was hardly a body can be said to have members, entered into the work with zeal, and having a common object to labor for, the association assumed a stability that it did not before possess, and increased in numbers. Those at work upon the new catalogue found that nearly a half century had passed since the completion of the first catalogue, and it was proposed that the semi-centennial anniversary of the presentation of the catalogue by Dr. Torrey to the Lyceum should be marked by a festival. Invitations were extended to the leading botanists of the country, many of whom promised to be present, and those who could not accept sent letters full of kindness to him who was the recipient of the intended honor. On the evening of December 20th, 1867, which was marked by one of the most furious of snow-storms, there assembled at the Astor House the members of the Club and a goodly number of invited guests.

The Club had then no officers, and by some process which has ever since remained a mystery, the one who now speaks to you presided at the table and made an address. This address gave an account of the Catalogue of 1817 and an enumeration of the subsequent botanical works of its author. The recipient of the honor made a reply full of modesty and feeling, speeches were made by most of those present, and letters were read from those who were unable to attend.

I have thus alluded to this occasion, because it was the first public demonstration on the part of the Club, and one which, as the proceedings of the evening were published in the *American Naturalist*, first made its existence generally known.

As materials for the new catalogue accumulated and new helpers came into the field, it became necessary to have a medium through which the co-workers could communicate, and it was proposed to establish a monthly Bulletin. The first number of the Bulletin appeared in January 1871, and it has since been continued with commendable regularity. Primarily devoted to matters relating to the catalogue, it has also given many botanical items of general interest. The Bulletin is an unpretending sheet of only four pages, but when we compare its contents with journals devoted to scientific specialties, at home or abroad, we have reason for a just pride in the value of its contents, as well as in their variety and conciseness.

About the time the Bulletin was proposed, it was thought best the Club should adopt a distinctive name. That of "Torrey Botanical Club" seemed the most fitting. In those days we seldom put matters to vote; we "took the sense of the meeting." Soon after this we made a step towards organization, so far as to appoint Dr. John Torrey President, P. V. LeRoy Secretary, and William H. Leggett Editor. But, as we had been in the habit of conversing

in small knots, without any concert of action, it was rather difficult to abandon the custom, and even after we had adopted this partial organization our meetings were not models of parliamentary formality.

As the Club acquired new members and grew in importance, it was decided that we should become a regularly organized body under a charter, that we might enjoy the privilege of "sueing and being sued."

A charter was passed on April 21st, 1871, but was not adopted. It is an interesting illustration of the manner in which the lowest form of politics pervaded legislative action, that among the incorporators of the Club there were introduced the names of two low "Ring" politicians. The charter allowed the Club to hold property to the amount of \$50,000 and there was just a shadow of a chance that at some time something could be made, and the names of two of "the ring" were interpolated among those of gentlemen and botanists. Upon inquiring, it was found that it was the custom in granting charters to put in the name of some members of the ring that they might be on hand in case any thing should "turn up."

Of course the members of the Club could not be associated, even technically, with disreputable persons forced upon them in this unfair manner, and they did not adopt the charter until the names of these objectionable individuals were removed, by an amendment passed April 29th, 1872. The Charter was adopted by the Club January 7th, 1873, and a constitution on the 28th of the same month.

Nothing remained for the full organization of the Club but to pass the necessary by-laws and elect the prescribed officers. Before the first election could be held, he whom we should have delighted to honor by choosing him as our president was taken from us. Our head, our beloved friend, Dr. John Torrey, passed from this life on the 10th of March last.

This simple statement suggests to each one of us a loss that I cannot adequately express. Yet I feel that at this time I should place upon the records of the association certain data which, though so familiar to us as to need no telling, should be preserved for those who will succeed us. For, Gentlemen, the Club took root so gradually and its early growth was so healthy, that I feel it will have greater permanence than most associations of its kind; and it would seem that the records of the Club is of all places the most fitting for an account of the botanical labors of him whose name we have chosen.

John Torrey was born in this city on Aug. 15th, 1796. His father, originally from New England, was a Captain in the Continental army and was among those who entered the city upon its evacuation by the British forces.

Of the boyhood of Dr. Torrey we know but little; he attended the public schools and was for a year at a school in Boston. Several times during the latter years of his life I requested him to write out his reminiscences of his early days and his recollections of the early botanists. The idea seemed to please him, but so averse was he to

anything that might appear like egotism, that he never carried out the suggestion. He was rarely given to talking about himself, and all that those most intimate with him know about his youth and the struggles that must have attended the beginning of his scientific career is from chance hints he dropped now and then.

When a mere boy, while upon a visit in the country (the upper part of the island was then "the country,") he saw two young men pass along the road, all travel-stained and laden with strange parcels. The unusual appearance of these young men prompted him to inquire about them, and he was told that they were "the Le Conte boy" and another whose name I have forgotten, and that they were "botanists." The young Torrey for the first time saw a botanist, and he looked upon him as a curiosity, little thinking that he himself would in time be a chief among botanists. The "Le Conte boy" afterwards became the celebrated Major Le Conte, who contributed largely to botany and other sciences.

While still a youth it was Dr. Torrey's fortune to be brought into relations with Amos Eaton, who was the great instructor in popular science of his day, and it was through his teachings that the young Torrey first learned the rudiments of botany.

Up to the time he became a medical student we know but little of his career. He had a marked natural talent for practical mechanics, and at one time seriously entertained the idea of becoming a machinist. This love for mechanical affairs remained with him through life, and his talent in this direction was often displayed in various useful ways. He ultimately chose the medical profession and entered the office of Dr. Wright Post, the eminent physician and surgeon of his day. At that time the practice of medicine was very different from what it is now. Then the physician not only dispensed his own medicines, but they were for the greater part prepared in his office by the students. In the preparation of chemical and pharmaceutical compounds Torrey, the student, found occupation in accordance with his tastes, and he often alluded to his experience here as of great service to him in after life.

Either during his apprenticeship, as it was then called—in our day medical students only read with their preceptors—or after he entered the college of Physicians and Surgeons, he was an interested attendant upon the botanical lectures of the eminent Dr. Hosack, at the Elgin Botanical Garden, which were given not far from the spot where we are now assembled. At that time young Torrey was an industrious collector and he often carried to Dr. Hosack the fruits of his herborizations. On one occasion Dr. Hosack was so much pleased with some rare species that he remarked before the class, "That young man has *an old head*." Medical students then were the same as now; the generic type holds in all times and in all countries. They were not slow to take up the words of the professor, and Dr. Torrey during his student's career was the "old head" of his class.

As a medical student Dr. Torrey must have devoted much time

to botany, as the catalogue already referred to was presented to the Lyceum in 1817, which was a year before he took his degree. Those who are engaged upon the present catalogue, with all the aid and materials that the advanced state of the science brings to their help, can best appreciate the immense labor that must have been required to bring the first catalogue to its remarkable completeness. Copies of the catalogue of 1817 are now very rare and difficult to procure. As we turn over its pages and read of its author's favorite localities, we find that they are now far "down town" and covered by blocks of brick and brown stone. When this catalogue was made up, Canal Street was out of town and was his station for *Draba Caroliniana*. Not only the localities but the co-workers named in the catalogue have long ago passed away. Mitchell, Nuttall, Eddy, Le Conte, Cooper, and others who contributed materials for the work, all departed before its author. William Cooper was the last of these. He was the frequent companion of Dr. Torrey's early botanical excursions, and until the last these two old men held for one another a boy-like friendship as charming as it is rare.

While yet a student of medicine, Dr. Torrey was one of the founders of the New York Lyceum of Natural History. The incorporators met to adopt their charter—if I remember correctly—in one of the rooms of the College of Physicians and Surgeons in Barclay Street. The origin of the Lyceum was marked by a more festive demonstration than attended that of our Club, for upon the adoption of the charter they adjourned to a well known public house and celebrated the event in mugs of ale, paid for by a general contribution of pennies.

During the early career of the Lyceum, Dr. Torrey was one of its most active members and contributed to its Annals many of its most important papers. For many years he was its President. The Lyceum, like other associations of its kind, was not exempt from the misfortune of party. At one annual meeting, when Dr. Torrey desired to decline a reelection, he was induced to accept a nomination; an opposing faction elected its candidate over him. So hurt was he at what he regarded as an unfair trick that he never again went to the meetings of the Lyceum. In this mention of the Lyceum it may be well to state that by acting as its curator a young botanist from Western New York was enabled to pursue his botanical studies in New York. This young botanist is now known as Prof. Asa Gray.

After obtaining his medical degree, Dr. Torrey took an office in the city, but the attractions of botany, mineralogy, entomology and chemistry prevented him from applying himself seriously to practice. We infer from what he has said that his office was more frequently sought by young scientists than by patients. His love for scientific pursuits, joined to a dislike to witness human suffering, led him to abandon medicine at the first opportunity.

Soon after he was graduated, the expedition of Maj. Long was proposed, and Dr. Torrey was offered the position of botanist.

He was greatly tempted to accept this opportunity for botanical distinction, but he had formed ties which were strong enough to keep him at home. Dr. Baldwin was appointed in his place and upon the death of Baldwin, who was an almost hopeless invalid from the start, the duties of botanist were performed by the surgeon of the expedition, Dr. James.

In 1820, Dr. Torrey published in Silliman's Journal "A Notice of Plants collected by Capt. N. Douglas around the Great Lakes at the Head Waters of the Mississippi.

In 1823, he contributed to the Annals of the Lyceum of Natural History "Descriptions of some new or rare plants from the Rocky Mountains, collected by Dr. Edwin P. James."

The year 1824 was an eventful one to our friend. In it he published "A Flora of the Northern and Middle States, or Systematic Arrangement and Description of all the Plants heretofore discovered North of Virginia." In this year he was married to Miss Eliza Robinson Shaw, and was settled at West Point as Professor of Chemistry in the U. S. Military Academy. This Flora, the concluding pages of which were written on the morning of its author's wedding day, is now rare, a large portion of the edition having been destroyed by fire. It contains over 500 species and includes the first twelve classes of the Linnæan system. In this work the author first manifested his acuteness in diagnosis, and it is remarkable for its elaborate and minute descriptions.

In this same year, 1824, we find "Descriptions of New Grasses from the Rocky Mountains" in the Annals of the Lyceum, and a "Monograph of the North American species of Carex," of which he was joint author with Schweinitz. Schweinitz had placed the paper in Dr. Torrey's hands, to edit and supervise the printing of it, during the author's absence in Europe. When Schweinitz found how much the value of his monograph had been increased by additions and revision, he insisted that Torrey's name should appear as joint author, and that it should be quoted as Schweinitz & Torrey.

Foreseeing that the Linnæan system was to be supplanted by one founded upon a more profound knowledge of the structure of plants and broader views of their relationships, the Flora was not continued beyond its first volume, but its author, in 1826, published a Compendium which contained condensed descriptions of the plants enumerated in the first volume of the Flora and of those that would have been given in the second volume. As one of the few members of the Club whose botanical experience extends far enough back to have used this Compendium as a text book, I can bear testimony to its great superiority to all other botanical works of its time. The name "Compendium" was fitly chosen, as in copiousness, conciseness and compactness, it came as a great relief after the vagueness of other works.

In 1826, Dr. Torrey read before the Lyceum "Some Account of a Collection of Plants made during a Journey to and from the Rocky Mountains, in the Summer of 1820, by Edwin P. James,

M.D., Assistant Surgeon, U. S. Army." This memoir was not published until 1828. Before its publication its author, after three years' service, left West Point to assume the chair of Chemistry and Botany in the N. Y. College of Physicians and Surgeons. This account of Dr. James's Rocky Mountain plants is of especial interest as being the first botanical publication of importance in this country in which the plants were arranged according to the Natural System. Shortly before, the Abbé Correa had arranged a list, in which the genera named in Muhlenberg's catalogue were placed according to the system of Jussieu.

In 1831, Lindley's Introduction to Botany was re-published in this country. Dr. Torrey prepared a catalogue of the North American genera, arranged according to Lindley's orders, which was published with the work and also separately in the pamphlet form.

Dr. Torrey was always fond of studying obscure and difficult orders, hence the Borraginaceæ, Chenopodiaceæ, Amarantaceæ, and Cyperaceæ had particular attractions for him. As early as 1836 he published in the Annals of the Lyceum his "Monograph of the Cyperaceæ." This contained, besides a full account of the other genera, a complete revision of the genus *Carex*. No publication by our friend shows better work than this, and it was a most valuable contribution to North American botany, as it contained an elaboration of the species collected by Drummond, Richardson, Burke, and other British collectors, whose specimens were loaned by Sir William Hooker.

The Geological Survey of the State of New York was organized in 1836, and Dr. Torrey was appointed as its Botanist. His report was published, after many delays and discouragements, in 1843. It forms two enormous 4to volumes, filled with detailed descriptions of all the plants known to belong to the State, and is illustrated with 161 plates. When we consider that this work was produced amid the labors of his professorship at the Medical College, to which had been added those of the Chair of Chemistry at Princeton, we must wonder at the untiring industry of its author. Whoever was at that time in charge of the survey was economical unto meanness, for Dr. Torrey had to buy his own copy of his own work. During the printing of the work an assistant of the author carefully preserved the revise proofs and put them away in regular order. When the Medical College was moved from Crosby street, this roll of proof sheets was found, and Dr. Torrey gave them to me. Fortunately every page was in its place, and now, handsomely bound, it is one of the prized works in my library, and is unique as being the only copy in existence "presented by the author."

The first number of the "Flora of North America, by John Torrey and Asa Gray," appeared in 1838, the fruit of a most happy association, which continued for over forty years, and which has done so much for the advancement of American botany. In relation to this most important work I can appropriately quote the