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ART. XLIV.—JOHN TORREY: *A Biographical Notice.*

THE following article forms a part of the Annual Report by the Council to the American Academy of Arts and Sciences, before which it was read at the meeting on the 8th of April, ult. This accounts for the form in which the biography is cast, and for the exclusion of many details and personal particulars which otherwise would naturally have found a place in it. It is the President of the American Academy rather than the companion and friend of many years who writes; yet the narrative must needs take tone and color from the intimate association of the writer with the subject of it. A. GRAY.

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JOHN TORREY, M.D., LL.D., died at New York, on the 10th of March, 1873, in the 77th year of his age. He has long been the chief of American botanists, and was at his death the oldest, with the exception of the venerable ex-president of the American Academy (Dr. Bigelow), who entered the botanical field several years earlier, but left it to gather the highest honors and more lucrative rewards of the medical profession, about the time when Dr. Torrey determined to devote his life to scientific pursuits.

The latter was of an old New England stock, being, it is thought, a descendant of William Torrey, who emigrated from



Combe St. Nicholas, near Chard, in Somersetshire, and settled at Weymouth, Massachusetts, about the year 1640.\*

His grandfather, John Torrey, with his son, William, removed from Boston to Montreal at the time of the enforcement of the "Boston Port bill." But neither of them was disposed to be a refugee. For the son, then a lad of 17 years, ran away from Canada to New York, joined his uncle, Joseph Torrey, a Major of one of the two light infantry regiments of regulars (called Congress's own) which were raised in that city; was made an ensign, and was in the rear-guard of his regiment on the retreat to White Plains; served in it throughout the war with honor, and until at the close he re-entered the city upon "Evacuation Day," when he retired with the rank of Captain. Moreover, the father soon followed the son and became quartermaster of the regiment. Captain Torrey, in 1791, married Margaret Nichols, of New York.

The subject of this biographical notice was the second of the issue of this marriage, and the oldest child who survived to manhood. He was born in New York, on the 15th of August, 1796. He received such education only as the public schools of his native city then afforded, and was also sent for a year to a school in Boston. When he was 15 or 16 years old his father was appointed Fiscal Agent of the State Prison at Greenwich, then a suburban village, to which the family removed.

\* In some notes furnished by a member of the family, the descent is endeavored to be traced through the eldest of the five sons who survived their parent, namely, Samuel, who came with him from England, became a minister of the gospel, and had the unprecedented honor of preaching three election sermons (in 1674, 1683, and 1695), as well as of having three times declined the presidency of Harvard College (after Hoar, after Oakes, and after Rogers). Although educated at the College, he was not a graduate, because he left it in 1650, after three years residence, just when the term for the A.B. degree was lengthened to four years. The tradition has it, that, "at the prayer meetings of the students, he was generally invited to make the concluding prayer,"—for which an obvious reason suggests itself,—for "such was his devotion of spirit that, after praying for two hours, the regret was that he did not continue longer." Students of the present day are probably less exacting.

The desire to claim a descent through so eminent a member of the family is natural. But our late venerable associate, Mr. Savage, in his Dictionary of early New England families, states that he could not ascertain that Samuel had any children.



At this early age he chanced to attract the attention of Amos Eaton, who soon afterwards became a well-known pioneer of natural science, and with whom it may be said that popular instruction in natural history in this country began. He taught young Torrey the structure of flowers and the rudiments of botany, and thus awakened a taste and kindled a zeal which were extinguished only with his pupil's life. This fondness soon extended to mineralogy and chemistry, and probably determined the choice of a profession. In the year 1815, Torrey began the study of medicine in the office of the eminent Dr. Wright Post, and in the College of Physicians and Surgeons, in which the then famous Dr. Mitchill and Dr. Hosack were professors of scientific repute; he took his medical degree in 1818; opened an office in his native city, and engaged in the practice of medicine with moderate success, turning the while his abundant leisure to scientific pursuits, especially to botany. In 1817, while yet a medical student, he reported to the Lyceum of Natural History—of which he was one of the founders—his Catalogue of the Plants growing spontaneously within thirty miles of the city of New York, which was published two years later; and he was already, or very soon after, in correspondence with Kurt Sprengel and Sir James Edward Smith abroad, as well as with Elliot, Nuttall, Schweinitz, and other American botanists. Two mineralogical articles were contributed by him to the very first volume of the *American Journal of Science and Arts* (1818–1819), and several others appeared a few years later, in this and in other Journals.

Elliott's sketch of the Botany of South Carolina and Georgia was at this time in course of publication, and Dr. Torrey planned a counterpart systematic work upon the botany of the Northern States. The result of this was his "*Flora of the Northern and Middle Sections of the United States, i. e., north of Virginia*,"—which was issued in parts, and the first volume concluded in the summer of 1824. In this work Dr. Torrey first developed his remarkable aptitude for descriptive botany, and for the kind of investigation and discrimination, the tact and acumen, which it calls for. Only those few,—now, alas, very few,—surviving botanists who used this book through the following years can at all appreciate its value and



influence. It was the fruit of those few but precious years which, seasoned with pecuniary privation, are in this country not rarely vouchsafed to an investigator, in which to prove his quality before he is haply overwhelmed with professional or professorial labors and duties.

In 1824, the year in which the first volume (or nearly half) of his *Flora* was published, he married Miss Eliza Robinson Shaw, of New York, and was established at West Point, having been chosen Professor of Chemistry, Mineralogy and Geology in the United States Military Academy. Three years later he exchanged this chair for that of Chemistry and Botany (practically that of Chemistry only, for Botany had already been allowed to fall out of the medical curriculum in this country) in the College of Physicians and Surgeons, New York, then in Barclay Street. The *Flora of the Northern States* was never carried further; although a "Compendium," a pocket volume for the field, containing brief characters of the species which were to have been described in the second volume, along with an abridgement of the contents of the first, was issued in 1826. Moreover, long before Dr. Torrey could find time to go on with the work, he foresaw that the natural system was not much longer to remain, here and in England, an esoteric doctrine, confined to profound botanists, but was destined to come into general use and to change the character of botanical instruction. He was himself the first to apply it in this country in any considerable publication.

The opportunity for this, and for extending his investigations to the great plains and the Rocky Mountains on their western boundary, was furnished by the collections placed in Dr. Torrey's hands by Dr. Edwin James, the botanist of Major Long's expedition in 1820. This expedition skirted the Rocky Mountains belonging to what is now called Colorado Territory, where Dr. James, first and alone, reached the charming alpine vegetation, scaling one of the very highest summits, which from that time and for many years afterward was appropriately named James' Peak; although it is now called Pike's Peak, in honor of General Pike, who long before had probably seen, but had not reached it.



As early as the year 1823 Dr. Torrey communicated to the Lyceum of Natural History descriptions of some new species of James's collection, and in 1826 an extended account of all the plants collected, arranged under their natural orders. This is the earliest treatise of the sort in this country, arranged upon the natural system; and with it begins the history of the botany of the Rocky Mountains, if we except a few plants collected early in the century by Lewis and Clark, where they crossed them many degrees farther north, and which are recorded in Pursh's Flora. The next step in the direction he was aiming was made in the year 1831, when he superintended an American reprint of the first edition of Lindley's Introduction to the Natural System of Botany, and appended a catalogue of the North American genera arranged according to it.

Dr. Torrey took an early and prominent part in the investigation of the United States species of the vast genus *Carex*, which has ever since been a favorite study in this country. His friend, von Schweinitz, of Bethlehem, Penn., placed in his hands and desired him to edit, during the author's absence in Europe, his Monograph of North American Carices. It was published in the Annals of the New York Lyceum, in 1825, much extended, indeed almost wholly rewritten, and so much to Schweinitz's satisfaction that he insisted that this classical Monograph "should be considered and quoted in all respects as the joint production of Dr. Torrey and himself." Ten or eleven years later, in the succeeding volume of the Annals of the New York Lyceum, appeared Dr. Torrey's elaborate Monograph of the other North American Cyperaceæ, with an appended revision of the Carices, which meanwhile had been immensely increased by the collections of Richardson, Drummond, &c., in British and Arctic America. A full set of these was consigned to his hands for study (along with other important collections), by his friend Sir Wm. Hooker, upon the occasion of a visit which he made to Europe in 1833. But Dr. Torrey generously turned over the Carices to the late Professor Dewey, whose rival Caricography is scattered through forty or fifty volumes of the American Journal of Science and Arts; and so had only to sum up the results in this regard, and



add a few southern species at the close of his own Monograph of the order.

About this time, namely in the year 1836, upon the organization of a geological survey of the State of New York upon an extensive plan, Dr. Torrey was appointed Botanist, and was required to prepare a Flora of the State. A laborious undertaking it proved to be, involving a heavy sacrifice of time, and postponing the realization of long-cherished plans. But in 1843, after much discouragement, the Flora of the State of New York, the largest if by no means the most important of Dr. Torrey's works, was completed and published, in two large quarto volumes, with 161 plates. No other State of the Union has produced a Flora to compare with this. The only thing to be regretted is that it interrupted, at a critical period, the prosecution of a far more important work.

Early in his career Dr. Torrey had resolved to undertake a general flora of North America, or at least of the United States, arranged upon the natural system, and had asked Mr. Nuttall to join him, who, however, did not consent. At that time, when little was known of the regions west of the valley of the Mississippi, the ground to be covered and the materials at hand were of comparatively moderate compass; and in aid of the northern part of it, Sir William Hooker's Flora of British America—founded upon the rich collections of the Arctic explorers, of the Hudson's Bay Company's intelligent officers, and of such hardy and enterprising pioneers as Drummond and Douglas,—was already in progress. At the actual inception of the enterprise, the botany of Eastern Texas was opened by Drummond's collections, as well as that of the coast of California by those of Douglas, and afterward those of Nuttall. As they clearly belonged to our own phyto-geographical province, Texas and California were accordingly annexed botanically before they became so politically.

While the field of botanical operations was thus enlarging, the time which could be devoted to it was restricted. In addition to his chair in the Medical College, Dr. Torrey had felt obliged to accept a similar one at Princeton College, and to all was now added, as we have seen, the onerous post of State Botanist. It was in the year 1836 or 1837 that he invited the



writer of this notice—then pursuing botanical studies under his auspices and direction—to become his associate in the Flora of North America. In July and in October, 1838, the first two parts, making half of the first volume, were published. The great need of a full study of the sources and originals of the earlier-published species was now apparent; so, during the following year, his associate occupied himself with this work in the principal herbaria of Europe. The remaining half of the first volume appeared in June, 1840. The first part of the second volume followed in 1841; the second in the spring of 1842; and in February, 1843, came the third and the last; for Dr. Torrey's associate was now also immersed in professorial duties and in the consequent preparation of the works and collections which were necessary to their prosecution.

From that time to the present the scientific exploration of the vast interior of the continent has been actively carried on, and in consequence new plants have poured in year by year in such numbers as to overtask the powers of the few working botanists of the country, nearly all of them weighted with professional engagements. The most they could do has been to put collections into order in special reports, revise here and there a family or a genus monographically, and incorporate new materials into older parts of the fabric, or rough-hew them for portions of the edifice yet to be constructed. In all this Dr. Torrey took a prominent part down almost to the last days of his life. Passing by various detached and scattered articles upon curious new genera and the like, but not forgetting three admirable papers published in the Smithsonian Contributions to Knowledge (*Plantæ Fremontianæ*, and those on *Batis* and *Darlingtonia*), there is a long series of important, and some of them very extensive, contributions to the reports of government explorations of the western country,—from that of Long's expedition already referred to, in which he first developed his powers, through those of Nicollet, Fremont, and Emory, Sitgreaves, Stansbury, and Marcy, and those contained in the ampler volumes of the Surveys for Pacific Railroad routes, down to that of the Mexican Boundary, the botany of which forms a bulky quarto volume, of much interest. Even at the last, when he rallied transiently from the fatal attack, he took



in hand the manuscript of an elaborate report on the plants collected along our Pacific coast in Admiral Wilkes's celebrated expedition, which he had prepared fully a dozen years ago, and which (except as to the plates) remains still unpublished through no fault of his. There would have been more to add, perhaps of equal importance, if Dr. Torrey had been as ready to complete and publish, as he was to investigate, annotate and sketch. Through undue diffidence and a constant desire for a greater perfection than was at the time attainable, many interesting observations have from time to time been anticipated by other botanists.

All this botanical work, it may be observed, has reference to the Flora of North America, in which, it was hoped, the diverse and separate materials and component parts, which he and others had wrought upon, might some day be brought together in a completed system of American botany.

It remains to be seen whether his surviving associate of nearly forty years will be able to complete the edifice. To do this will be to supply the most pressing want of the science, and to raise the fittest monument to Dr. Torrey's memory.

In the estimate of Dr. Torrey's botanical work, it must not be forgotten that it was nearly all done in the intervals of a busy professional life; that he was for more than thirty years an active and distinguished teacher, mainly of chemistry, and in more than one institution at the same time; that he devoted much time and remarkable skill and judgment to the practical applications of chemistry, in which his counsels were constantly sought and too generously given; that when, in 1857, he exchanged a portion, and a few years later the whole, of his professional duties for the office of U. S. Assayer, these requisitions upon his time became more numerous and urgent.\* in addition to the ordinary duties of his office, which he fulfilled to the end with punctilious faithfulness (signing the last of his

\* It ought to be added, that, when the Government Assay Office at New York was established, the Secretary of the Treasury selected Dr. Torrey to be its Superintendent,—which would have given to the establishment the advantage of a scientific head. But Dr. Torrey resolutely declined the less laborious and better paid post, and took in preference one the emoluments of which were much below his worth and the valuable extraneous services he rendered to the Government,—simply because he was unwilling to accept the care and responsibility of treasure.



daily reports upon the very day of his death, and quietly telling his son and assistant that it would not be necessary to bring him any more), he was frequently requested by the head of the Treasury Department to undertake the solution of difficult problems, especially those relating to counterfeiting, or to take charge of some delicate or confidential commission, the utmost reliance being placed upon his skill, wisdom, and probity.

In two instances these commissions were made personally gratifying, not by pecuniary payment, which, beyond his simple expenses, he did not receive, but by the opportunity they afforded to recruit failing health and to gather floral treasures. Eight years ago he was sent by the Treasury Department to California by way of the Isthmus; and last summer he went again across the continent, and in both cases enjoyed the rare pleasure of viewing in their native soil, and plucking with his own hands, many a flower which he had himself named and described from dried specimens in the herbarium, and in which he felt a kind of paternal interest. Perhaps this interest culminated last summer, when he stood on the flank of the lofty and beautiful snow-clad peak to which a grateful former pupil and ardent explorer, ten years before, gave his name, and gathered charming alpine plants which he had himself named forty years before, when the botany of the Colorado Rocky Mountains was first opened. That age and fast-failing strength had not dimmed his enjoyment, may be inferred from his remark when, on his return from Florida the previous spring, with a grievous cough allayed, he was rallied for having gone to seek Ponce de Leon's fountain of Youth. "No," said he, "give me the fountain of Old Age. The longer I live, the more I enjoy life." He evidently did so. If never robust, he was rarely ill, and his last sickness brought little suffering and no diminution of his characteristic cheerfulness. To him, indeed, never came the "evil days" of which he could say, "I have no pleasure in them."

Evincing in age much of the ardor and all of the ingenuousness of youth, he enjoyed the society of young men and students, and was helpful to them long after he ceased to teach,—if, indeed, he ever did cease. For, as Emeritus Professor in Columbia College (with which his old Medical School was



united), he not only opened his herbarium, but gave some lectures almost every year, and as a trustee of the college for many years he rendered faithful and important service. His large and truly invaluable herbarium, along with a choice botanical library, he several years ago made over to Columbia College, which charges itself with its safe preservation and maintenance.

Dr. Torrey leaves three daughters, a son, who has been appointed U. S. Assayer in his father's place, and a grandson.

This sketch of Dr. Torrey's public life and works, which it is our main duty to exhibit, would fall short of its object if it did not convey, however briefly and incidentally, some just idea of what manner of man he was. That he was earnest, indefatigable, and able, it is needless to say. His gifts as a teacher were largely proved and are widely known through a long generation of pupils. As an investigator, he was characterized by a scrupulous accuracy, a remarkable fertility of mind, especially as shown in devising ways and means of research, and perhaps by some excess of caution.

Other biographers will doubtless dwell upon the more personal aspects and characteristics of our distinguished and lamented associate. To them, indeed, may fittingly be left the full delineation and illustration of the traits of a singularly transparent, genial, delicate and conscientious, unselfish character, which beautified and fructified a most industrious and useful life, and won the affection of all who knew him. For one thing, they cannot fail to notice his thorough love of truth for its own sake, and his entire confidence that the legitimate results of scientific inquiry would never be inimical to the Christian religion, which he held with an untroubled faith, and illustrated, most naturally and unpretendingly, in all his life and conversation. In this, as well as in the simplicity of his character, he much resembled Faraday.

Dr. Torrey was an honorary or corresponding member of a goodly number of the scientific societies of Europe, and was naturally connected with all prominent institutions of the kind in this country. He was chosen into the American Academy in the year 1841. He was one of the corporate members of the National Academy at Washington. He presided in his turn



over the American Association for the Advancement of Science; and he was twice, for considerable periods, President of the New York Lyceum of Natural History, which was in those days one of the foremost of our scientific societies. It has been said of him that the sole distinction on which he prided himself was his membership in the order of the Cincinnati, the only honor in this country which comes by inheritance.

As to the customary testimonial which the botanist receives from his fellows, it is fortunate that the first attempts were nugatory. Almost in his youth a genus was dedicated to him by his correspondent, Sprengel: this proved to be a *Clerodendron*, misunderstood. A second, proposed by Rafinesque, was founded on an artificial dismemberment of *Cyperus*. The ground was clear, therefore, when, thirty or forty years ago, a new and remarkable evergreen tree was discovered in our own Southern States, which it was at once determined should bear Dr. Torrey's name. More recently a congener was found in the noble forests of California. Another species had already been recognized in Japan, and lately a fourth in the mountains of Northern China. All four of them have been introduced and are greatly prized as ornamental trees in Europe. So that, all round the world, *Torreya taxifolia*, *Torreya Californica*, *Torreya nucifera*, and *Torreya grandis*—as well as his own important contributions to botany, of which they are a memorial—should keep our associate's memory as green as their own perpetual verdure.

ART. XLV.—*Contributions from the Sheffield Laboratory of Yale College.* No. XXVI.—*On a compact Anglesite from Arizona;* by GEO. J. BRUSH.

ASSOCIATED with some specimens of galena from Castle Dome District, Arizona, there is found a compact banded mineral very much resembling some of the varieties of wood-tin from Cornwall. Mr. John C. Trautwine, C.E., of Philadelphia, having observed this anomalous substance, sent some specimens of it to me for determination in October last. A pyrognostic examination made at that time showed the mineral to be a compact anglesite. Subsequently Mr. Trautwine kindly provided me with more specimens, and a quantitative examination





Gray, Asa. 1873. "John Torrey : a biographical notice." *The American journal of science and arts* 5(30), 411–421.

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