

Phycological Trailblazer No. 3 William Henry Harvey

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William Henry Harvey (1811-1866) will forever stand out as a legendary figure in phycology, a true trailblazer. Dozens of biographical sketches about Harvey and his phycological contributions have been written (Stafleu & Cowan, 1979). This brief account will focus on Harvey as a traveler and collector, who although never blessed with robust health managed to remain unintimidated by the rigors of long journeys by sea or land or the demands of rude circumstances presented by mid-19th century frontiers. I attribute his enormous impact on phycology to his passion for natural history and his long-cherished dream of enlarging his botanical knowledge by travel (Webb, 1966). The first opportunity arose when a family friend dispensed political patronage in Harvey's direction, namely, the nomination for the post of Colonial Treasurer at Capetown. Due to a clerical error the patent was made out in the name of his older brother Joseph, and the Whig government responsible for his appointment collapsed soon after. However, the decision was made to permit the 24-year old William to accompany his brother as an assistant, leaving him with much free time to botanize. He arrived in Cape Town in time for the austral springtime, and his

youthful exuberance is conveyed in a letter (Anon., 1869) he wrote to a cousin the day after his arrival:

I am fairly wild with delight at everything botanical since I came on shore. I often thought of you this morning on the Devils Mountain (absurd name for an Elysium of flowers), whilst picking up at every step some new or exquisite plant; nor did I among the glorious strangers despise the mosses I rose this morning at six, being too excited to sleep, and set off to the mountain on an exploring expedition ... The most striking objects were the Proteas, of which I gathered several. Orchideae of preposterous forms, and Umbelliferae; but such oddities!



Younger phenotype (frontispiece from Harvey, 1849b).

His brother Joseph died within 6 months, and William was promoted from deputy to Treasurer. On and off with leaves-of absence to visit home, Harvey spent the next 6 years at Capetown. It is remarkable that he was still in his 20s when he authored his first book (1838), which he admitted was a work to pave the way for a Flora Capensis; as he put it: "To be sent to resident doctors, clergymen, etc., scattered about the country to excite their idle minds to send specimens into Cape Town" (Gunn & Codd, 1981). Health problems (apparently the onset of tuberculosis) forced Harvey

to forsake his pleasant existence in Capetown and return to England and later Ireland to work reluctantly in the family business. Good fortune came his way when the Professorship of Botany of Trinity College in Dublin was vacated. The Medical School, however,

controlled the position, and the Professor had to be a medical doctor. Even though an honorary M. D. was soon awarded to him, the chair of Botany went to G. J. Allman, who happened to be both an eminent zoologist and a bonafide doctor of medicine. Allman, however, had no interest in managing the herbarium, and soon a deal was struck, resulting in £100 of his salary being sacrificed and the Board of the College coming up with another £50 to go toward Harvey's being hired to be the Curator of the herbarium without any teaching duties, something which Harvey, a

rather shy type, regarded as ideal. In 1848, Harvey was elected to hold the Professorship of Botany of the Royal Dublin Society, and by 1856, when Allman departed for Glasgow, Harvey was appointed to be the University Professor of Botany. He held both professorships for the rest of his life.

With these positions, Harvey was relatively free to take off on elaborate collecting expeditions. The first such trip was to North America. In the spring of 1849, Harvey was invited to present a lecture series at the Lowell Institute in Cambridge, Mass. He wrote to his good friend Asa Gray at Harvard, outlining his lectures. Three of the lectures dealt with algae of the "green," "red," and "olive series." Harvey sailed from Liverpool to Halifax, landing in July, 1849. With no inkling that Halifax would someday be a primary center for phycological research, he described the shores of Nova Scotia as "not unlike some bleak parts of the north of Scotland ... Such wooding has a very sombre appearance, and,

in cold weather, must be the quintessence of bleakness" (Anon., 1869). He was impressed with the harbor of Halifax and managed to secure the services of a boatman to dredge for some "huge seaweeds, different from those of our shores, and so far interesting." He later

managed to make collections in Boston Harbor and Long Island Sound. By train and omnibus Harvey did a fair amount of traveling in North America, even taking in Niagara Falls and the "noble Hudson River" and visiting Philadelphia, Utica, Trenton, Richmond,

Washington D.C., Montreal, and Quebec. In Boston, he had dinner with Daniel Webster and was visited by Longfellow. His lectures in Cambridge had 400-500 in the audience, the evening lectures being attended chiefly by men and the afternoon lectures by women. The fact that Louis Agassiz attended the lectures was especially gratifying to Harvey. In Providence, 800 turned out to hear Harvey give a discourse on seaweeds "treated in popular fashion." In New York, he dined with General Scott, Commander-in-Chief of the U. S. Army, and James Fenimore Cooper, who had been in the Navy and had a "sailor-like manner." A white Christmas provided the sight of sleighs going up and down Broadway. He wrote to a friend back home that he found everything very delightful," warning "you must not be surprised if I fall in love with America and settle down here" (Anon., 1869).

When his lecture series concluded by Christmas, Harvey traveled southward through the Carolinas. Although the "cookery" at



House on 4 Linton Road, Dublin, where Prof. Harvey lived in the period 1861-1863. [Photo taken by Hilda Parkes in August, 1961.]



Fig. 1. *Mesogloia virescens* Carm. Pl. 82 in Harvey, 1847a. [= *Eudesme virescens* (Carm. ex Berkeley) J. Agardh]

Wilmington was "very greasy and not over clean", a walk after dinner enthralled him when he found a swamp full of Venus's fly-trap (*Dionaea muscipula*). In Charleston, Prof. Lewis R. Gibbes aided Harvey in making dredge collections. Then he proceeded by steamer to Savannah, from where he continued southward to Florida. At Key West he was let out on a rickety wood pier at half past midnight in the pouring rain, loaded down with his baggage and "bulky botanical traps" with all the boarding houses full. Always a model of equanimity, he took it all in stride. The next morning he wandered to the beach, and on hearing a strong sea breeze passing through the leaves of a grove of coconut palms, he exclaimed: "O glorious! this world is full of beautiful things." He also found a "paradise of seaweeds."

By this period Harvey had a reputation as one of the foremost phycologists and was the beneficiary of collections made by many



Fig. 2. *Sarcocladia obesa* Harv. Pl. 217 in Harvey, 1862. [= *Curdia obesa* (Harv.) Kylin].

North American collectors, such as Tuomey, Blodgett, and Wurdemann. He (1858b) was also indebted to Professor Jacob Bailey of Westpoint, who was one of the first to study American algae and who was instrumental in Harvey's successful phycological work in North America. It was Bailey who served as Harvey's "chief American referee," sending him numerous specimens. He suggested that Harvey write a "memoir" on the algae of America, and arranged for the Smithsonian Institution to publish it. Harvey's *Nereis Boreali-Americana* (1852-1858) is ample evidence of his achievements in North America. In the Introduction to vol. 1 (1852) he paid homage to the venerable Archibald Menzies, surgeon and naturalist on the Vancouver Expedition to the northwest coast of America. Harvey had met Menzies, who related his memories of exploring for "cryptogamic treasures" a half-century earlier and thus filled Harvey with a desire to explore the American shores.

Harvey spent three years (1853-1856) traveling throughout the Southern Hemisphere, making collections and discovering and describing many new genera and species of marine algae. He was already fairly familiar with Southern Hemisphere algae, having received the collections made by J. D. Hooker on Ross' expedition to Tasmania, Antarctica, and New Zealand and its associated islands. Harvey, either by himself or with Hooker, published on these collections (1844b, 1855b, 1860c; Hooker & Harvey, 1845, 1847, 1848). Harvey's three-year sojourn was divided among Australia, Sri Lanka, Fiji, and the Friendly Islands (Tonga). The ship made stops at Gibraltar, Malta, and Alexandria. From Cairo he joined a camel caravan overland and spotted the outline of the pyramids from a 10-12 mile distance. After 18 hours, the party reached Suez, but Harvey found no seaweeds on the beach. He did pick up a *Padina* and an *Ectocarpus* during a stop at Aden. He finally arrived in Sri Lanka for a 2-month visit. The initial collecting there was dismal, causing Harvey to worry that he will disappoint his friends back home: "What will they say if I carry a dredge all around the world and never once throw it into a fishing-ground! What a donkey it is!" A stay at the splendid Royal Botanical Garden at Peradeniya and the hospitality of Superintendent George Thwaites and his wife revived Harvey's spirits. Collecting at Point de Galle and at Belligam Bay proved very fruitful, and he gathered late during his stay in Ceylon 100 species and about 5,000 specimens. The time in Ceylon "hardened me gradually to roughing it. You should see my forehead. Since I came to dear Belligam, it looks, from mosquito bites, like the frond of *Iridaea radula* in full fruit; but *Claudea* and *Vanvoorstia* makes up for many disagreeables."

From Galle he took the S.S. Madras, a mail steamer of the P. & O. Company carrying 80 first-class passengers on to Western Australia, and it was in Australia that half of his 3-year sabbatical was spent. Harvey's wanderings ranged from Freemantle and Albany in the west to Port Jackson and Kiama

in the east and Melbourne, Port Fairy, and "Hobartown" in the south. From Rottneest Island, off Freemantle, he wrote: "It seems as if every new place in Australia (so far) was pleasanter than the last, and if it goes on at this rate, I can't say when I may think of turning homeward" (Anon., 1869). It was in Australia that he amassed his tremendous sets of pressed specimens for distribution to subscribers. He managed to press large numbers of duplicates for 601 numbers of Australian algae (compared with 106 from Ceylon and 124 from the Friendly Islands). By 1857 these sets of "Dr. Harvey's Australian Algae" were being incorporated into the world's herbaria (Ducker, 1977). His series *Phycologia Australica* consisted of five octavo volumes of 60 colored plates each, the first volume appearing in 1858 and the final one in 1863. Except for his 1854 description of three handsome net-forming red algae, including *Vanvoorstia* gen. nov., Harvey did not have the time to work up his collections from Ceylon and the Friendly Islands. It was J. Agardh and Kützing who were able to provide the descriptions for the new species from those collections.

In Western Australia, Harvey's journey from Albany to Cape Riche was his first experience at bush-traveling, where he preferred walking to sitting in a cart. The small party included a convict servant, who had been an optician (and bigamist!) back in Manchester. He was intelligent, and Harvey found that they had a lot to talk about. The usual "bush fare" consisted of bread, cold pork, and mutton. Reaching the Colgas River, which was at this season just large and deep water holes, Harvey collected *Chara* and *Nitella* while the horses were watered.

In June, 1855, Harvey took temporary leave of Australia when he took passage on the brig *John Wesley*, a cramped ship of the Wesleyan Methodist Missionary Society. The passage from Sydney to Auckland took 2 weeks. Although he had only a week in New Zealand, he did get out in a boat but saw more oysters than algae. His time there was "a mere

tantalizing scrap of a tour." Then he was off to Tonga, that leg taking 17 days. Harvey arrived in the so-called Friendly Islands in time of war (and cannibalism was still rife in that period). One of the junior chiefs, on a friendly mission, was treacherously killed (and eaten), causing King George I of Tonga to call out 2,000 warriors for revenge. Harvey wrote about the long war canoes, which could hold from 50 to 60 men. Harvey's letters to family and friends back home relating these events, as he dutifully pressed his algae, have been compiled by Ducker (1988) and make for fascinating reading.

He returned to Sydney late in 1855, and early in the new year set sail for South America for the trip home. In April he arrived in Valparaiso in "a very bad state of health—weak—worn & suffering from nervous fever." After only 10 days of recuperation in the English Hospital, he had regained his health and was soon out in the gullies near the hospital checking out the vegetation. Often on his mind were concerns about how to raise money for his travels; this he did mainly by the distribution of exsiccatae." He wrote to Asa Gray that he wanted "very much to raise money for my travels by honest means."

Because Harvey never proposed any major scientific hypothesis or theory, his fame is not in the same league as that of some other figures of his day. Harvey was a contemporary of Charles Darwin and thus well aware of the emerging ideas on evolution and natural selection. Some of Darwin's algae collected on the H.M.S. Beagle were sent to Harvey, who described some of them (1847a, 1849), including *Amphiroa darwiniana*. Initially, Harvey, born a Quaker, had a difficult time adjusting to something other than the immutability of species, but gradually under the influence of his respected friend Asa Gray, a staunch supporter of Darwin, Harvey came to accept the new doctrine. Nevertheless, his tenacity and his accomplishments in a relatively short life are remarkable.



More mature Phenotype (frontispiece from Anonymous, 1869).

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Michael J. Wynne
University of Michigan, Ann Arbor