

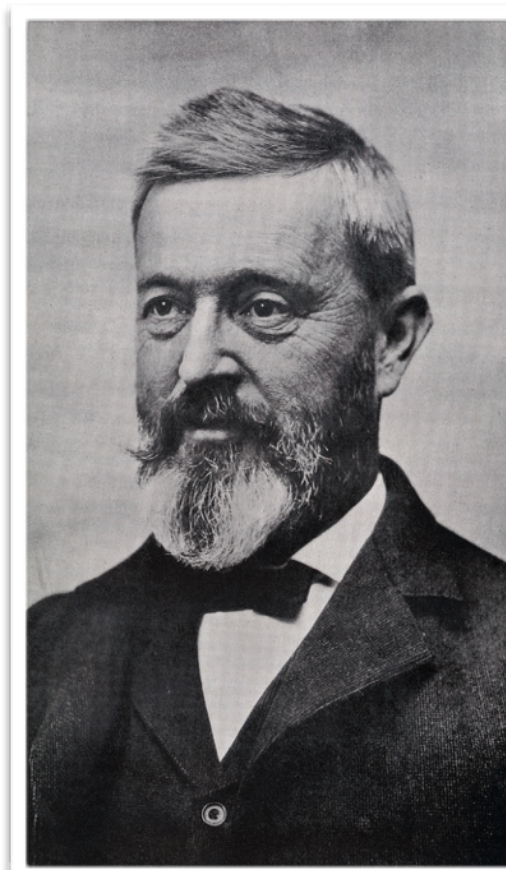
# Phycological Trailblazer

## No. 15

### Horatio C Wood

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Horatio C Wood is certainly known for more than his contributions to botany and phycology. He has been regarded as “the pioneer in American pharmacology” and made numerous significant accomplishments in medicine, human physiology, and experimental therapeutics. Yet Horatio Wood is also remembered because he was one of the early and important American phycologists, one who preceded and influenced Wolle (1887). He came from an era in which medical people received extensive education in botany and in the medicinal uses of plants. But his strong curiosity in natural history in general and in botany and freshwater algae in particular manifested itself when he was quite young. His biographer Roth (1939, 1959) recorded how Wood came to the attention of the eminent Professor Joseph Leidy of the Philadelphia Academy of Sciences. Leidy could not help but notice the frustration of the 13 year-old Wood, who was unable to handle and study specimens in a display case in the Philadelphia Academy of Natural Sciences. Leidy made arrangements with the President of the Society



Horatio C Wood (from Roth, 1939)

that this inquisitive youth might have access to such cases as he should desire, and thus Wood’s innate interest in science was encouraged at this formative time in his life.

Wood’s initial scientific interests were botanical, and at the relatively young age of 19 he published his first paper, a contribution on the carboniferous flora of the United States. In fact, two other papers quickly followed.

He entered the University of Pennsylvania Medical School in 1859. At that time a medical degree was conferred after the completion of two courses of lectures, the submission of a graduation thesis (Wood’s thesis was on enteric fever), and the attainment of the

age of 21. Thus, he received his degree in medicine in 1862. Residency was spent in two civilian hospitals in Pennsylvania. With the “War Between the States” going on, once his residency was completed, he joined the United States Army, serving in its medical corps. It was after the War that he returned to Medical School of Penn, taking on the job of “quizmaster” or teacher. It was routine then that the medical school staff would also carry out their medical practice. Wood’s practice centered on neurological and psychiatric cases.

In 1867 he published his first paper on freshwater algae of North America, which was followed by about a dozen other relatively short papers on such algae as *Schizomeris*, *Oedogonium*, and *Palmella*. These papers were published mostly in the in-house journal

of the Philadelphia Academy of Natural Sciences. Wood (1867b) reported on sexual and asexual reproduction in *Oedogonium* and *Bulbochaete*. He used fixatives and stains to detect the “circle



Fig. 1. Wood, 1872, pl. XII.

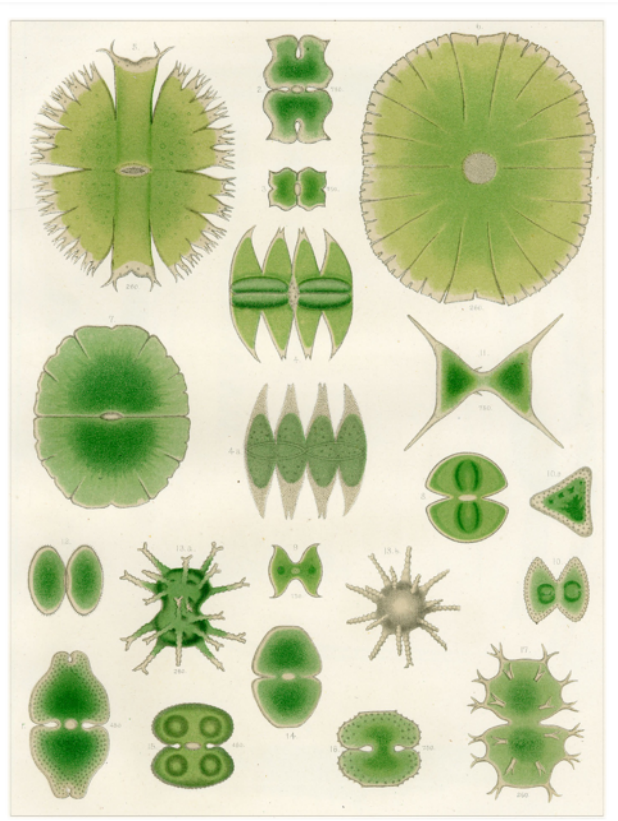


Fig. 2. Wood, 1872, pl. XIII.

or crown of cilia” in the naked zoospores of *Oedogonium*. He also observed the attachment of the dwarf male filaments in gynandrosporous species. He apparently traveled to California because he reported (1867c) an unnamed fresh-water alga growing in a Mono County hot spring, with water temperatures of 120-136°F. A more substantial publication, “Prodromus of a Study of the Fresh-water Algae of Eastern North America”, appeared in 1869. Then in 1872 he published his magnum opus on freshwater algae, namely, a quarto of 270 pages accompanied by 21 plates (19 of which were colored). The plates displayed an impressive total of 360 microscopic drawings executed by Wood himself and showing his artistic talents. Examples of two of those plates are depicted above (Figs. 1 & 2).

One of the new species that Wood described in his 1872 work was the red alga *Chantransia macrospora* from Aiken, South Carolina. This species was transferred to *Batrachospermum* by Collins (1906), where it

was renamed *B. australe* because of the prior existence of the name *Batrachospermum macrosporum* Montagne. Wood’s species was also moved to *Pseudochantransia* by Brand (1909). The name *Audouinella macrospora* (Wood) Sheath & Burkholder (1985) was later proposed, but Necchi & Zucchi (1996) provided evidence that *A. macrospora* represents the *Chantransia* stage in the life history of several species of *Batrachospermum*, including *B. macrosporum* Montagne. By their analysis of rDNA sequences, Pueschel et al. (2000) demonstrated that 3 cultures of *A. macrospora* fell in a clade with *B. macrosporum* Montagne, thus generally confirming the conclusions made by Necchi & Zucchi that *A. macrospora* is not a distinct species within the Acrochaetiaceae.

On behalf of the Smithsonian Institution, Wood ventured out in search of biological specimens. One of his trips was to the Bahamas. Another expedition was to then-remote regions of Texas along the Mexican border. In fact, he

was supposed to be one of the first white men on record to see the Grand Canyon of the Rio Grande. For recreational purposes he took up hunting, and this avocation took him to remote parts of western and northwestern America and Europe in pursuit of large game.

Wood's primary research efforts gradually became focused on pharmacology, and he devoted thirty years of his professional life in helping to develop a Pharmacopoeia of the United States. From 1890 to 1910 he served as President of the United States Pharmacopoeial Convention. In 1902 he was the official delegate representing the United States at the Brussels Conference, which was called by the Belgian government to establish an International Pharmacopoeia (Roth, 1939). Most of the approximately 300 publications by Wood treated physiology, pharmacology, and experimental therapeutics. He was responsible for the very first publications in which hemp (*Cannabis sativa*) and hyoscyne were used as pharmacological agents. These took on the reputation as classic papers. Other papers involved the activities of atropine, quinine, ethyl bromine, various anesthetics, and amyl nitrite. Dogs were initially used as experimental animals before he tried the drugs on humans, but he did include both himself and his wife as "guinea pigs" in these experiments. Wood was the recipient of numerous honors, including being elected to the National Academy of Sciences in 1879.

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