

= Charles Henry Smyth , Jr . =

Charles Henry Smyth , Jr . ( / sma?? / ; March 31 , 1866 ? April 4 , 1937 ) was an American geologist . Born to a prominent family in Upstate New York , he studied geology at Columbia University before becoming a professor of geology at Hamilton College and Princeton University . At Princeton he strengthened the Department of Geology 's graduate program .

Smyth specialized in petrology , chemical geology , and economic geology . He showed the sedimentary origin of iron ore deposits near his native Clinton , New York , mapped the geology of the western Adirondack Mountains , and published a well known monograph on the origins of alkaline igneous rocks . He was a fellow of the American Association for the Advancement of Science , a member of the American Philosophical Society , and a fellow of the Geological Society of America .

= = Family = =

Smyth was born March 31 , 1866 , in Oswego , New York , the second son of Alice DeWolf Smyth and Charles Henry Smyth , Sr. In 1873 , he moved with his family to nearby Clinton , New York . His mother belonged to a well known Oswego banking and manufacturing family . His father was a prominent local businessman , holding executive positions at the Franklin Iron Works , Clinton Bank , and the company that managed the Niagara Falls Suspension Bridge . He also served on the vestry of the local Episcopal church and was a brigadier general in the New York Guard . The family was considered among the local elite in Clinton . Katharine Blunt was a first cousin .

On July 30 , 1891 , the younger Charles Smyth married Ruth Anne Phelps , originally of Shreveport , Louisiana . They had two children , Charles Phelps Smyth ( 1895 ? 1990 ) and Henry DeWolf Smyth ( 1898 ? 1986 ) . Both became professors of science at Princeton University .

= = Education = =

Smyth studied at Clinton Grammar School in his youth . He became interested in geology at a young age : his native region of Upstate New York had many fossils , and his family 's business involved extracting the local iron ore . In 1884 , he entered Hamilton College in Clinton , where he studied science . After a year he transferred to the School of Mines at Columbia University . At Columbia he was president of the Glee Club . He graduated in 1888 as one of the top three students in his class .

Smyth continued his studies at Cornell University under James Furman Kemp and Harvard University under Nathaniel Shaler . He also worked as an analytical chemist at the Franklin Iron Works , his father 's company . He earned his Ph.D. in geology from Columbia in 1890 , writing a dissertation titled " The Origin of the Clinton Type of Iron Ore " . He then spent an additional year studying petrology at Heidelberg University under Harry Rosenbusch , the world expert in the field .

= = Career = =

In 1891 Smyth returned to Hamilton College to become the Stone Professor of Natural History . In addition to his teaching duties at Hamilton , Smyth spent each summer from 1892 to 1903 doing field work for the New York State Museum in the western Adirondack Mountains , which had been studied very little in the fifty years prior . He collaborated with his old advisor Kemp , who specialized in the eastern Adirondacks , and Henry Platt Cushing , who claimed the northern and northeastern sections . He returned to field work a final time in 1908 ; ill health prevented further expeditions .

In 1905 Woodrow Wilson , then President of Princeton University , convinced Smyth to join the Princeton faculty , where Smyth remained until retiring in 1934 . He strengthened the graduate program in the Department of Geology , which awarded only two advanced degrees before 1912 ; during his 29 years , another 31 degrees were awarded . Among his students were Arthur Francis Buddington and Albert Orion Hayes . His courses in petrology and chemical geology introduced

students to subjects that were relatively new in the United States .

Smyth was a fellow of the American Association for the Advancement of Science , a member of the American Philosophical Society , and a fellow of the Geological Society of America . He was also a member of the Society of Economic Geologists , the American Institute of Mining and Metallurgical Engineers , the Washington Academy of Sciences , Phi Beta Kappa , and Sigma Xi .

= = Research = =

Smyth 's research was in the subfields of petrology , chemical geology , and economic geology . When he began his research most American geologists who used chemistry were mineralogists , volcanologists , or specialists in ore . Smyth was a pioneer in chemical petrology , applying chemistry to ordinary rocks , in the United States .

In his dissertation he argued that the iron ore near Clinton was a primary sediment ; at the time the deposits were believed to be secondary nodules formed by replacement of primary limestone . His Princeton graduate student Hayes proved a similar result about the iron ores of his native Wabana , Newfoundland and Labrador . In 1919 , Smyth showed that a green mineral in the Clinton ores was chamosite and also a primary sediment .

Smyth , Kemp , and Cushing 's field work in the Adirondacks yielded detailed geologic maps of the challenging region . Smyth described the nature and origins of the area 's rocks and mineral deposits . His conclusions were still largely accepted at the time of his death in 1937 .

His two best known contributions were his work on the Clinton iron ore and a 1927 monograph about the origins of alkaline igneous rocks .

= = Later life and legacy = =

In his later years Smyth suffered from poor health , which an obituary in Princeton Alumni Weekly blamed on " overwork in certain rugged inaccessible wilderness portions of the Adirondacks . " He contracted tonsillitis during his 1898 expedition to the Adirondacks and suffered heart and digestive troubles thereafter . He died April 4 , 1937 , at Princeton Hospital . The cause was pneumonia and complications from a recent hip fracture .

The mineral smythite is named after him . Its properties resemble those of pyrrhotite samples Smyth studied in Upstate New York .