

Watkins, Caldwell, and Powers. Progressive teachers would do well to secure this very worth while book.

In conclusion the writer desires to express his sincere thanks to Mr. Eason and Mr. Peters of the State Board of Education in Richmond for their hearty co-operation in this survey.

FRED C. MABEE

VIRGINIA SCIENTISTS AND INVENTORS

VIRGINIA'S roll of honor includes several scientists and inventors with whose lives and work every science teachers of our state ought to be familiar. Of these, five were selected: Maury, Mallet, McCormick, Walter Reed, and Richard Byrd. A study of the life and work of these men cannot fail to stimulate the deep interest of the teacher in the splendid work of these men, and such interest almost inevitably spreads by contagion to the pupils.

The historical background provided by these biographies, together with the recognition of the need¹ in Virginia of a *far more* intensive education on the *scientific* side, ought to produce a more stimulating type of teaching.

Dr. John C. Metcalf,² Dean of the Graduate School of the University of Virginia, recently called attention to the profound educational values inherent in well-written biography. He stated furthermore that in recent years biographical reading has been increasingly in vogue, and that fortunately good material has been available. It is hoped that the five brief biographies submitted herewith will serve to whet the appetite of science teachers for additional reading relating to these "science heroes"—an appetite which may be satisfied in part, at least, by the appended brief bibliographies.

¹O'Shea Survey Report, 1928, p. 9, 11.

²Founder's Day address at the State Teachers College, Harrisonburg, March 24, 1930.

MATTHEW FONTAINE MAURY

Matthew Fontaine Maury was born in Spottsylvania County, Virginia, on January 14, 1806.

At the age of eighteen he joined the Navy, where he stayed until 1839, leaving because of an accident which made him a cripple for life. Soon after the accident he was put in charge of the Hydrographic office in Washington. In 1861 he left this to join the Confederate Navy. Here he began the establishment of the Naval Submarine battery service at Richmond. After beginning this work Maury went to Europe, where he worked on the torpedo, trying to perfect its use. In 1868 he became professor of physics at V. M. I., Lexington, Va.; he remained there until his death in 1873. He was buried in Hollywood cemetery, Richmond, Virginia.

Maury's contributions to science were concerned chiefly with the Navy, but were of far-reaching significance in several fields, *viz.*, Oceanography, Meteorology, Geography. He explored the depth of the ocean and in 1855 published his *Physical Geography of the Sea and its Meteorology*. He advocated for many years the establishment of a national weather bureau especially for farmers. He conducted a systematic observation of the rise and fall of water in the Mississippi River. His life and work stand as a tremendous inspiration to any one pursuing studies in science, and should be especially stimulating to all Virginians.

Evidence that Virginians, at least, are not unmindful of his splendid service to mankind is found in buildings named in his honor, such as the High School in Norfolk, Maury-Brook Hall at V. M. I., Lexington, Va., and Maury Hall (the science building) at the Harrisonburg State Teachers College; also in a number of monuments, especially the one erected in his honor at Goshen Pass, and the one recently unveiled on Monument Avenue in Richmond.

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2. *Matthew Fontaine Maury, the Pathfinder of the Seas*, by Charles Lee Lewis, Annapolis, The U. S. Naval Institute, 1927, 264 pages, plates, portraits.
3. *Life and Letters of Maury*, by Jacqueline Ambler Caskie, Richmond Press, Inc., Richmond, Va., 1928, 191 pages.
4. *The Pathfinder of the Seas*, by John W. Wayland, Garrett and Massie, Richmond, Va., illustrated, 1930.

WALTER REED

Walter Reed was born September 13, 1851, in Gloucester County, Virginia. He was educated at the University of Virginia, Bellevue Medical School and Johns Hopkins University. In 1874 he entered the medical corps of the U. S. Army as assistant surgeon. In 1893 he was promoted to surgeon and made professor of bacteriology in the newly-organized Army Medical School. While in this position he discovered that the common house-fly is a carrier of typhoid fever. Later, in 1899, he went to Cuba with several associates to investigate the cause and method of transmission of yellow fever. He proved through a series of experiments that the yellow fever parasite was carried only by the mosquito *Aedes calopus* and that its bite caused the disease only under certain conditions. With the co-operation of the Health Department of Havana he was able to rid the city of this species of mosquito.

Reed died in Washington, D. C., November 23, 1902.

A large hospital at Washington is named after Walter Reed, as is also the physical education building at the Harrisonburg State Teachers College.

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JOHN W. MALLET

John William Mallet was born of English parents near Dublin, October 10, 1832.

He was educated at the Royal College of Surgeons in Dublin and at Trinity College, University of Dublin. In 1852 he received the degree of Ph. D. at Tottingen, his thesis being a report upon the chemical examination of Celtic antiquities in the museum in Dublin. Before this time he did some work on the velocity of transmission of shocks from gunpowder explosion through loose earth.

In 1853 he came to the United States. The next year he was elected professor of Chemistry at the University of Alabama where he remained until 1861. In 1868 Dr. Mallet came to the University of Virginia to organize and build up the School of Analytical and Industrial Chemistry, conducting what is thought to be the first systematic course in industrial chemistry in the United States. Here he remained the major portion of his life.

Mallet died November 6, 1912, at the University of Virginia.

Mallet's most notable contributions to science were published in some "200 articles upon unfamiliar chemical compounds, unusual minerals, meteors, mineral waters, chemical and physical phenomena, and a number relating to the chemistry of medicine." But he also contributed very definitely to science in the training of a large number of chemists who afterwards went out into prominent positions in industry, medicine, and as teachers of chemistry.

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3. F. P. Dunnington, A Sketch of Dr. John William Mallet as a Chemist and Teacher, *Journal of Chemical Education*, Col. 5, No. 2, Feb., 1928, p. 183-188.

REAR-ADMIRAL BYRD

Richard Evelyn Byrd was born in Winchester, Va., on October 24, 1888. He was educated at Shenandoah Valley Academy, Virginia Military Institute, University of

Virginia, and U. S. Naval Academy. In 1925 he went to Greenland. In 1926, accompanied by Floyd Bennett, he flew to the North Pole and back to base at Kings Bay. This daring exploit is described in Byrd's book, *Skyward*. In 1927 he, with three companions, made a trans-Atlantic flight from New York to Paris. In both of these flights valuable scientific data was obtained. In 1929 he made a conquest of the South Pole by airplane and a geological survey of the gigantic Queen Maud Mountains (see Special Feature Section, *N. Y. Times*, February 23, 1930). Using airplane and radio this expedition has developed a new technique in the field of Antarctic exploration.

The expedition also secured valuable scientific data on the dust content of the atmosphere, snow, auroras, temperature and constitution of the Barrier, depth of the ocean at various places, and magnetic effects.

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1. Richard E. Byrd, *Skyward*, Putnam, 1928, 359 p., \$3.50.
2. F. Green, *Dick Byrd—Air Explorer*, Putnam, 1928, \$1.75.
3. C. J. V. Murphy, *Struggle*, Stokes, 928, \$2.50.

McCORMICK

Cyrus Hall McCormick was born at Walnut Grove near Raphine, Rockbridge County, Va., in 1809. At the age of twenty-two he invented his reaper, but was unable to convince his conservative neighbors of its worth. Previous to 1845 he had sold only two of his machines, and when, in that year, he received an order for eight from Cincinnati he decided to go there to see what he might accomplish. Two years later he went to Chicago. Here he established (1847) the McCormick Harvesting Machine Co., which was the sound beginning of the present International Harvester Co.

McCormick was a liberal benefactor of worthy causes. In 1859 he contributed generously to the establishment of the Presbyterian Theological Seminary of the Northwest, later called McCormick Semi-

nary. He also endowed a chair in Washington and Lee University.

In 1878 at the French Exposition he received for the third time the grand prize for his reaping and self-binding machine. He was also made a corresponding member of the French Academy of Sciences and an officer of the Legion of Honor.

He died in Chicago in 1884.

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