

## CENTENARIES

By S. R. Ranganathan, M.A., L.T., F.L.A.

(University Librarian, Madras)

### Bartram, William (1739–1823)

WILLIAM BARTRAM, an American naturalist, was born February 9, 1739 in the house of stone erected by his father John with his own hands in his Botanic Garden (the first in the new world) in Philadelphia. William early displayed great talent for drawing natural objects. Various trades were attempted; for example, Benjamin Franklin offered to teach him printing. In 1765–66, he accompanied his father in exploring all the 400 miles of St. John's River. In 1773–77, William explored the south-eastern part of the U.S.A. In 1782 he was elected Professor of Botany in the University of Pennsylvania but declined the position for reasons of health.

#### HIS FAME

The chief cause of Bartram's fame is his fascinating *Travels through North and South Carolina, East and West Florida, the Charokee Country, the Extensive Territories of the Muscogulges or Creek Confederacy and the County of the Chactaus*. It was republished and translated in England, Ireland, Germany, Holland and France. The literary influence of the *Travels* was immense. "It is a work of high merit every way" wrote Coleridge, whose *Kubla Khan* is as much based on it as Wordsworth's *Ruth*. The *Travels* reveal a man with a deep reverence for the Creative Spirit he felt in all about him. For him the solitary "Woodpelican", alone on the topmost limb of a dead cypress, "looks extremely grave, sorrowful and melancholy, as if in deepest thought" and we find Wordsworth echoing the same in the *Prelude*

...and the pelican

Upon the Cypress spire in lonely thought  
Might sit and sun himself—Alas! Alas!  
In vain for such solemnity I looked.

#### HIS HONOURS

Bartram's varied knowledge was at the service of all who applied to him; he corresponded with naturalists abroad and was a member of many foreign societies. In his own country he became (1786) a member of the American Philosophical Society, which was founded by his father and Benjamin Franklin. His thought, his findings and his drawings were freely incorporated in the contemporary books. Alexander Wilson's *American ornithology* (1808–14) owed its inspiration to Bartram.

#### HIS END

Bartram lived as a bachelor in his father's Botanic Garden all through his later life. He had just finished writing the description of a plant and was stepping out for a stroll in his beloved Garden, when a blood vessel in the lungs ruptured and he died suddenly, July 22, 1823.

### Gibbs, Josiah Willard (1839–1903)

JOSIAH WILLARD GIBBS, an American mathematician, was born in New Haven, February 11, 1839. Both his parents were graduates. He took prize in Mathematics and Latin in Yale College and graduated in 1858. He took a doctorate in 1863 and after teaching Latin and Natural Philosophy for some time he spent three years in Europe and came under the influence of several of the most distinguished mathematicians and physicists of the world. In 1869, he returned to New Haven and in 1871 he was appointed Professor of Mathematical Physics in his own college and he continued as such for thirty-two years until his death.

#### HIS INFLUENCE

As the classics were the fashion in those days, he attracted few advanced students. He is said to have remarked a year before his death that during thirty years of his professorship he had had only about half a dozen students really equipped to profit by his lectures. Gibbs' influence came chiefly from his writings.

#### HIS CONTRIBUTIONS

Multiple algebra, vector analysis, thermodynamics, theory of light and theory of electricity were the fields of knowledge enriched by the twenty-one papers and the two books of Gibbs. Most of the papers were published in the *American journal of science*. Of the books, *Vector analysis* was first privately printed (1881–84) for the use of his class and published in 1901 in a greatly expanded form by one of his students. It was the result of his gift for elegance and conciseness and his earnest effort to devise a calculus by which the more or less complicated space relations of physics could be conveniently and perspicuously expressed. He also called attention to the great saving of labour, which the use of this calculus would cause in certain astronomical problems such as the determination of orbits and the solution of differential equations giving the perturbations.

#### STATISTICAL MECHANICS

His last work *Elementary principles in statistical mechanics* (1902) may be said to have supplied one of the great deficiencies in the scientific record of the nineteenth century. In spite of many dogmatic assertions that heat was a mode of molecular motion, this principle had not been put on a firm foundation until Gibbs established that the extra-dynamical laws of heat were consequences of the immense number of independent mechanical systems in any body—a number so great that only certain averages are perceptible. In the first twelve chapters, Gibbs forges out a perfect weapon for attacking the problem and its triumphant use in the last three chapters, makes