

CENTENARIES

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Smith, William (1769-1839)

WILLIAM SMITH, an English surveyor by profession and father of English stratigraphy by reputation, was born at Churchill, Oxfordshire, a village already famous as the birth-place of Warren Hastings, on the 23rd March 1769, the same year that gave birth to Cuvier, the famous French biologist who also contributed much to the stratigraphy of tertiary formations. Smith lost his father in his eighth year. His education did not take him beyond the village school. With difficulty he procured means to purchase a few books from which he might learn the rudiments of geometry and surveying. He soon came to be interested in drainage and made such progress in his studies that at the age of eighteen he was taken as assistant to a surveyor.

HIS CAREER

From 1793 he was the surveyor and resident engineer of the Somersetshire Coal-Canal. His mastery of scientific principles, his success in dealing with difficulties in drainage and all other questions connected with water led to his being summoned to different localities and gave him almost a monopoly of work for drainage and irrigation. Thus he earned a good deal but he spent more than he earned to the cause of his first love—stratigraphy—and this brought him to penury towards the end of his career.

FOUNDATION OF ENGLISH STRATIGRAPHY

Even as a child he had begun to collect stones, particularly of the well-preserved fossils of which the jurassic rocks of his neighbourhood were full. From an early part of his professional career, his attention was arrested by the connection between the soils. His first start on geological exploration work took place in 1794 when he went to north of England as a member of a Committee to explore the route of a canal to be constructed. The constant and close observation which he was compelled to give to the strata that had to be cut through in making the canal, led him to give special attention to the organic remains in them and to perceive that "Each stratum contained organised fossils peculiar to itself, and might, in cases otherwise doubtful, be recognised and discriminated from others like it, but in a different part of the series, by examination of them". In 1799 he circulated in manuscript the order of succession of the strata and the imbedded organic remains found near Bath.

THE FIRST GEOLOGICAL MAP

Much of his work was inserted upon maps, wherein he traced the position and range of each of the several groups of rocks with which he had become familiar. Data for maps were continuously added and in 1813 the work of engraving the grand final map was begun and it was published in 1815. This was the first geological map of England. It is 8'9" × 6'2" and is now exhibited in the Geological Department of the British Museum (Natural History) near his geological collection.

HIS PUBLICATIONS

As his general education was meagre, he found it difficult to write. Still under pressure from friends he overcame his reluctance to authorship and published in 1806 his *Observations on the utility, form and management of water meadows*. He also published his *Strata identified by organised fossils* (1816), *A stratigraphical system of organised fossils* (1817) and a reduced edition of his map (1819).

HIS HONOURS

In 1831 he received from the Geological Society the Wollaston Medal and Sedgwick, the President of the Society, seized the occasion to proclaim the admiration of all the geologists of England towards the man whom he named "the father of English geology". Next year the Government of William IV granted him a pension of 100 l a year, at the instance of the representatives of British science. In 1835 the Trinity College of Dublin conferred on him the honorary degree of LL.D. In 1838 he was employed on the Commission appointed to select the stone for the new houses of parliament.

HIS END

On his way to Birmingham to attend the meeting of the British Association on a special invitation, he stayed with some friends at Northampton. A cold, of which he had made light, assumed a serious form; and he died August 28, 1839.

Goodale, George Lincoln (1839-1923)

GEORGE LINCOLN GOODALE, an American botanist, was born in Saco, York County. He first studied at Amherst College, where he had been associated with Edward Tuckerman, the foremost American authority on lichens. After a year as assistant in chemistry, he studied medicine and earned the M.D. of Harvard in 1863.

HIS CAREER

After a few years of practice, when he published his botanical papers in the reports of the state survey and thereby attracted the attention of Asa Gray, he was called to Harvard in 1872 as instructor in Botany. In this modest position, he developed a lecture method characterised by finish, dignity and clarity and became so popular that the instructorship developed into an assistant professorship and later a professorship which he held till his seventieth year.

HIS CONTRIBUTIONS

To the hitherto almost exclusively taxonomic interest in plants, Goodale added interest in the morphological and physiological questions, which have since so stimulated the study of nature. He was the author of the first physiological botany in America, published in 1885 as Vol. II of *The botanical text-book* of Asa Gray. By extensive travels to the sources of tea, coffee, sugar, rubber and other plant products and the collection of specimens for the Harvard Museum, he also stimulated interest in economic botany.

Goodale died April 12, 1923.