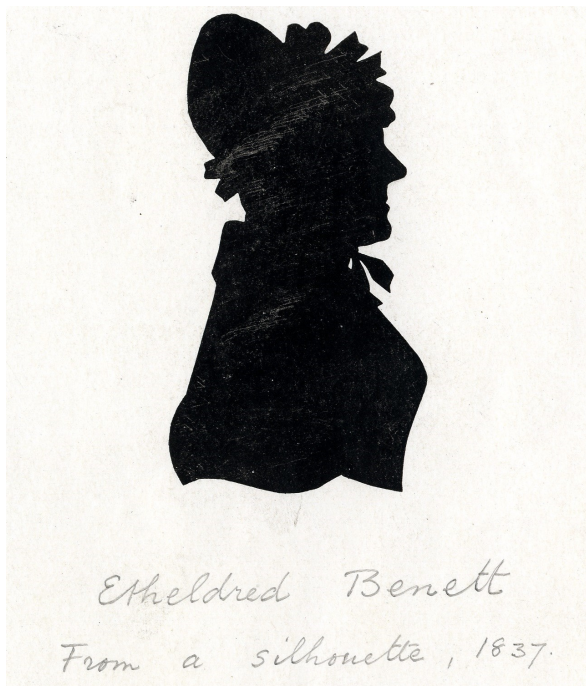


# ETHELDRED BENETT

## 1775-1845

*Stephen Hannath*

This year, 2015, is the bi-centenary of the publication of the world's first geology map by the man deemed the 'Father of English Geology', William Smith, but remarkably it is also the bi-centenary for a geological milestone for Etheldred Benett, a local Wiltshire woman often dubbed the 'Mother of English Geology'. Her achievement in 1815 was to produce the first annotated bed-by-bed section of the Chicksgrove Quarry near Tisbury where stone from the Purbeck and Portland beds in the Vale of Wardour is still extracted today and from where a unique range of fossils, particularly plant and reptile remains, have been found.



*The only known portrait of Etheldred Bennet © The Natural History Museum*

Miss Benett, for she never married, was born in 1776 at Pyt House near Tisbury but lived much of her life at Norton Bavant near Warminster where, as a woman of independent means, she was able to pursue her interest in collecting fossils, many of them from the Tisbury area including Chicksgrove Quarry. A relation of her eldest surviving brother John was Aylmer Bourke Lambert

(1761–1842), an original fellow of the Linnean Society, a Fellow of the Royal Society and an early member of the Geological Society. He was well known as a botanist and geologist and encouraged Etheldred and her sister Anna Maria to study natural history. Etheldred took up the newly fashionable study of fossils, while her sister took up botany.

She actually met William Smith, the Father of English Geology, and gave him a sample of a Tisbury coral. He also alluded to her in his correspondence to others as when he cited 'ladies in Wiltshire' who had 'distinguished themselves' in regards to their collections. (Torrens 2000 p60). As John Needham states in his book, 'Forests of the Dinosaurs – Wiltshire's Jurassic Finale', her work helped enable the correlation of the Cretaceous stratigraphy of the Vale of Wardour with that in Dorset. She also communicated with several other of the 'giants' of early palaeontology such as Professor William Buckland, Gideon Mantell, Edward Charlesworth, Henry de la Beche, Roderick Impey Murchison and Samuel Woodward plus George Lyell who gave us the theory of Uniformitarianism – that the processes of today are the same as those of yesteryear i.e. that 'the present is the key to the past'. She also contributed to the 'Modern History of South Wiltshire' by Sir Richard Colt Hoare. Thus, she moved in very elevated intellectual circles and was very generous in making her specimens available to others.

It is important to remember that Etheldred Benett lived at a time when fossils were considered as 'sports of God' or the result of religiously -significant catastrophes such as Noah's Flood, not as the result of natural processes over a long period of time. Several of the great early collectors were members of the clergy and this must have proved an intellectual challenge in the conflict between religion and science. (This predates the so-called late - nineteenth century 'Conflict Theory', now abandoned, which was epitomised by the Galileo and Darwin incidents.)

Etheldred Benett was the great granddaughter of a past Archbishop of Canterbury, William Wake, (of whom she wrote a biography), but her own views on the religion/science dilemma are possibly buried in personal

correspondence. It was also a time when women knew their place and scientific investigation was for men only. According to Creese and Creese (1994 p 26) many of the early 'geologists' were 'wife assistants' of the great researchers of the time, including the wives of William Buckland and Gideon Mantell mentioned above. (There were just 24 women geologists in 100 years of the nineteenth century and none with formal training appeared until around 1890 with the admission of women to higher education.) It is remarkable therefore that this independent lady, who refused to be constrained by the mores of her time, achieved so much. She was also a contemporary of that other great woman palaeontologist from Dorset, Mary Anning. Mary Anning was from a very modest background and began to sell her finds ('curiosities') to visitors to Lyme Regis where she lived. This supplemented the family income but led to her well-known discoveries of the Jurassic reptiles such as Ichthyosaurs and Pliosaurus, far more attention grabbing than fossil sponges or bivalves which were the focus of Etheldred Benett. They died within a few years of each other but it is Mary's name that is known throughout the world, such is the draw of the dinosaur world even though she wrote barely a thing geological, unlike Etheldred Benett who published much and was in communication with several eminent geologists.

The discoverer of *Iguanodon*, Gideon Mantell, was so impressed with the work of Etheldred that he named a Cretaceous sponge after her – *Doryderma benetti*. (The protocol is that you may name a new fossil species after a person, including yourself, but you may not name a newly discovered mineral after yourself.) The sponge came from the Upper Greensand near Warminster, close to her home. She also has her own ammonite in *Ammonites benettianus*. Her collection demonstrated that she was one of the first people to sieve for microfossils, which are now so important as indicators of possible oil deposits. She also collected specimens which, very rarely, contained evidence of soft tissue, usually destroyed in the process of fossilisation. Following her death in 1845 her collection largely went to America, bought and taken there by an Englishman and bequeathed to the Philadelphia Academy of

Natural Science where the collection now resides. Ongoing modern research there into her collection brings new evidence and ideas to light even today, about two hundred years later. Recent study of the collection that was long thought to be 'lost'; up to 1989 according to Torrens et al (2000), has given a renaissance of interest in this amazing woman. Indeed the lost examples of bivalves *Laevitrigonia gibbosa* from the Portlandian of Tisbury which, according to Torrens et al (2000 p72), 'were the first fossils ever found to have preserved most of their soft anatomy' were not re-discovered until 1992. According to Torrens et al, who have recently studied the collection, Etheldred Benett named an ammonite, a gastropod, four bivalves and twenty sponges (2000 p 70) including two genera (one rung up the taxonomic ladder from species). They go on to suggest that she might yet prove to be the first woman to have named fossil taxa, especially as many as she did.

I searched the list of Torrens et al (2000) of the many hundreds of different specimens in her collection in the hope of finding one from my own village of Dinton which lies close to Tisbury, Hindon, Chicks Grove and Chilmark where she found many specimens. I fully expected her to have visited a local quarry in the Upper Greensand (on the side of the Teffont Magna to Baverstock lane) which would have been accessible by coach. The quarry, listed in the Directory of British Fossiliferous Localities (1966 p113), has 'abundant oysters, lamellibranch and some brachiopods'. Alas, just one specimen was derived from Dinton, an undetermined echinoid (sea urchin) from the chalk.

Etheldred was banned from becoming a member of the Geological Society on account of her gender and must have been very frustrated by the society in which she lived for in a letter to Samuel Woodward in 1836 she stated that, 'scientific people in general have a very low opinion of my sex'. (From a letter to Samuel Woodward on 12<sup>th</sup> April 1836 – Oxford Dictionary of National Biographies). Tsar Nicholas 1, after seeing part of her collection, granted her a Doctorate of Civil Law at a time when women were not admitted into higher education – no doubt believing her unusual name was that of a male! (In fairness to the Tsar, Etheldred is the male

version of the name, the female equivalent of which is Etheldreda but all references to her give the male version.)

A paper by Spamer and Bogan (1993 p156-157) perhaps helps illustrate why her work had not been more widely recognised and celebrated. The paper, 'Where is *Polypothecia benett 1831?*' recognises some of the various factors that have bedevilled her collection and her reputation: she was a woman, her collection went abroad and was therefore of less interest and less examined than local examples, she did not publish all her finds, she named some species after others who did not always use her term so it became a 'nomen nudum' (a mere name published without a description), the problems of communication of the day could lead to duplicate names for some taxa and, most importantly, the collection remained 'lost' for over one hundred years.

At last Miss Benett now receives the recognition due to a great pioneer geologist. In November 2005 her silhouette was the emblem for a conference on the role of women in the history of geology held at the Geological Society in London. Etheldred Benett is a rare female example of an enthusiastic amateur who contributed so much to the founding of the science of geology which today impacts on our everyday lives in so many ways. The local area of South Wiltshire would have been much travelled by her and very well-known as she pursued her lifelong love of fossils.

#### References:

*Forests of the Dinosaurs – Wiltshire's Jurassic Finale 2011* John Needham Hobnob Press.

*Etheldred Benett of Wiltshire, England, the first lady geologist – Her fossil collection in the Academy of Natural Sciences of Philadelphia, and the rediscovery of 'lost' specimens of Jurassic Trigoniidae (Mollusca: Bivalvia) with their soft anatomy preserved.* Torrens, Benamy, Daeschler, Spamer and Bogan. 2000 Proceedings of the Academy of Natural Sciences of Philadelphia

*Etheldred Benett Encyclopaedia Britannica World of Earth Science 2003*

*Oxford Dictionary National Biographies –* Torrens HS 2009.

*Where is Polypothecia Benett 1831?* 1993 Earl E Spamer & Arthur E Bogan Journal of Palaeontology Vol 67 No 1 Jan 1993 pp156-157.

*Directory of British Fossiliferous Localities 1966* Palaeontographical Society  
*British Women who contributed to research in the Geological Sciences in the Nineteenth Century* 1994 Mary RS Creese and Thomas M Creese The British Journal for the History of Science Vol2 No1 March 1994

## PENNANT STONE IN BATH AND BRISTOL

*David Workman*

Bath is, of course, famous for being built largely with its own, eponymous stone, but there is another local stone widely used in the city which goes largely unremarked. This is Pennant, a Carboniferous sandstone used for much of the 19th century expansion of the city, obtained from the Bristol and Somerset coalfields. In the 1850s there were something like sixteen Pennant Stone quarries in north east Bristol, with a combined production of more than 24,000 tons a year. Today, a much reduced output of Pennant comes entirely from the Forest of Dean and South Wales; there are no quarries left in Bristol and none that I know of in Somerset.

The Pennant Series (geological term) is a succession of fluvial and deltaic sediments deposited across southern Britain in the late Carboniferous. It divides the Coal Measures into upper and lower parts and consists largely of sandstone, some 200m thick in the Bristol area but exceeding 1500m in South Wales. Variations in depositional conditions through time, and from place to place, means there are rocks of many different kinds, according to grain size, hardness, colour, thickness of bedding and so on. Some beds are suitable for masonry, others for paving or roof tiles. So there is no typical Pennant, it comes in a wide range of textures and tones.