

Beatrix Potter's fossils and her interest in geology*

by

B. G. GARDINER

Beatrix Potter became interested in fossils in her late twenties as a consequence of a visit to her cousins, the Hutton family, who lived at Harescombe Grange, near Stroud, Gloucestershire in June 1894.

The Hutton family had strong geological connections. The maternal grandmother, Sophia Holland of Dumbleton, near Evesham, was a renowned collector of Liasic fossils, particularly insects and fishes, while Robert Hutton of Putney Park was keenly interested in the earth sciences. Mary Hutton was a committed geologist whose collection of fossil sponges and Bryozoa from the Jurassic and Cretaceous was eventually donated to the British Museum of Natural History on her death in 1937.

Harescombe, a small village deep in the heart of the Cotswolds, is situated on the Inferior Oolite (the lower part of the Middle Jurassic). Much quarrying, both for building stone and for road metal, has gone on in the area. Consequently, there are numerous fossiliferous quarry faces to be scoured.

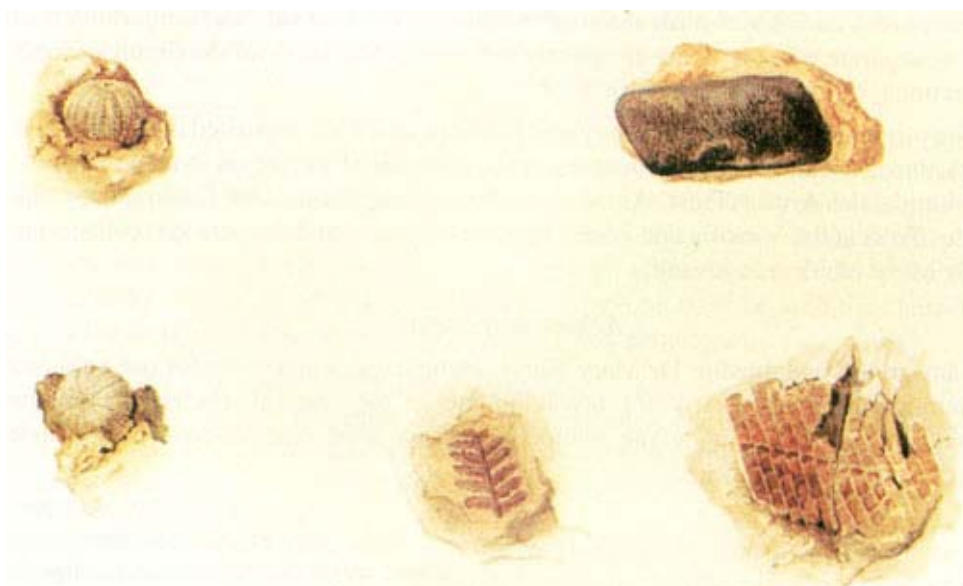


Figure 1. Gloucestershire fossils: *Magnosia forbesi* (Wright), palatal tooth of *Asteracanthus magnus* (Agassiz), fern frond and scales of *Dapedium dorsalis*. W/c on paper June 1895.

* Originally published in *The Linnean* 16(1): 31–47, January 2000.

Although in her diary Beatrix only mentions fossil collecting on two occasions during her first ten day visit, Mary and Caroline Hutton took her to the most important Lower Limestone quarry on Huddinknoll Hill, some 350 yards east of Harescombe Grange.

“We went up on the common above the copse after dinner and picked up fossils”

and to the very much larger quarry on Scotescuar Hill:

“On Wednesday in the morning we went after fossils”¹

By the time of her second visit to Harescombe Grange on Saturday, June 8th 1895, Beatrix had become an ardent fossil collector. After ten days she had not only collected many fossils, but had also photographed and painted a selection of them.

The painting provides locality details and in some instances identification. The echinoderm labelled *Arbacia forbesi* is now *Magnosia forbesi* (Wright) from L.T.G. Scotescuar – in other words the Lower Trigonian Grit Scotescuar Hill, two miles north of Stroud. The specimen, which is comparable with those in the NHM collections is,



Figure 2. *Asteracanthus magnus* (Agassiz), P22047, palatal tooth, M.H. Hutton bequest, April 1987. The locality given: quarry at south end of Huddinknoll Hill, half a mile north of Edge (near Harescombe).

or was, in the Reading University Geological Collection, where the residue of Mary Hutton's fossil specimens finished up.²

The fern frond, probably *Klukia*, has no information, although the fish scales at the bottom are labelled 'Upper Lias Dumbleton'. Dumbleton is a village in North Gloucestershire and the fish, *Dapedium dorsalis*, comes from the Falciferum Zone (Exoratum Subzone) of the Upper Lias. I am uncertain of the fate of this specimen, however. Beatrix clearly collected it on a visit to Grandmother Holland's house, Dumbleton Hall, with her two cousins.

The single tooth in the top righthand corner is labelled 'palatal tooth, Interior Oolite, Huddinknoll', which is the quarry nearest Harescombe Grange. This specimen is now in the NHM having been donated by Mary Hutton in 1957, together with her sponges and Bryozoa. The Bequest ends:

"Also 1 Fish tooth + 1 calcareous alga from the Jurassic of Glos."

The influence of the Hutton family, however, did not finish here, for Mrs Hutton arranged for Beatrix to call on Mr Lucey at 11, Camden Square, London to show him her fossils and paintings of fossils. She did so on 9 July 1896. After asking her what she required, he promised to meet her in the NHM and to tell her the names of some of the fossils:

"He seems to think it positively improper to collect fossils all over the country, but I do not feel under any obligation to confine my attention to a particular formation, viz., the various zones of the Inferior Oolite at Stroud, which I visit once a year for ten days. I beg to state I intend to pick up everything I find which is not too heavy."

Since her introduction to the pleasures of fossil hunting by her cousins, Beatrix had already collected at Lennel (trilobites and plants), Salisbury (ammonites) and Denbigh (corals and molluscs) and probably regarded Mr Lucey's view as anachronistic. Cousin Mary on the other hand initially confined her collecting to the Jurassic. Later, when she had decided to collect mainly Bryozoa and sponges, she extended her collecting to the Cretaceous and Tertiaries.

Beatrix met Mr Lucey at the Museum on July 13th when he pointed out the various fossils: they also met the keeper of Geology, Dr H.B. Woodward, a specialist on the Inferior Oolite. It was presumably he who identified Beatrix's echinoderm as *Arabacia forbesi* and explained that it came from the Lower Trigonina Grit (he also later identified her trilobites).

At this point we will return to June 1894 and Beatrix's introduction to fossil collecting by her cousins. The following month she went with her parents (July 1894) to Lennel, Coldstream, taking with her Ramsay's *Physical Geography of Great Britain* which she studied assiduously. Her diary for the next two months is full of geological observations and she was clearly able to recognise glacial moraine and stranded boulders and her imagination allowed her to pen such descriptions:

"Of the towering resistless ice piled as high as the clouds above me, grinding over the top of the Cheviots, swaying round it as the current sways round a stone under water."

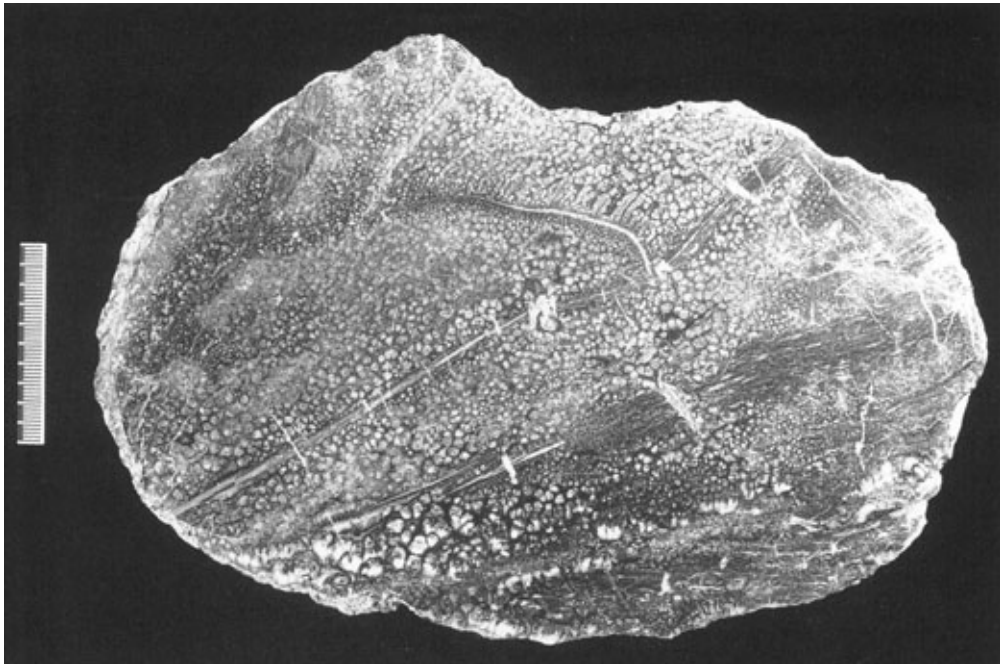


Figure 3. *Pitus antiqua* (*Araucarioxylon*) BMNH: OR 52810, Lennel Braes.

Despite this new interest in physical geology she spent a considerable time fossil hunting:

“July 28th wrote to Caroline. Went out after fossils again, and very nearly got cragged. I did not have any luck to compare with the fishe’s teeth a few days since.”

She was becoming an avid collector. She searched the shore at Carham without success but on the foreshore at Berwick she picked up a great many fossils. At about this time she acquired a geological map of the Jedburgh area together with an account of the local geology. Perhaps this inspired her, for her diary entry dated October 6th notes:

“I found some interesting fossils, also I have found out which stone to split and how to use a cold chisel.”

Then after packing up her fossils at the end of her holiday she wrote;

“The funguses will come up again and the fossils will keep. I hope I may go back again some day when I am an old woman, unless I happen to become a fossil myself which would save trouble. The fatigue and petty annoyance of a removal rather painfully obtrude the advantages enjoyed by disembodied spirits.”

As an afterthought she added:

“I made about 40 careful drawings of funguses and collected some interesting fossils one of which I find labelled at the Museum Araucarioxylon from Lennel Braes, a lucky find since I know nothing about it.”

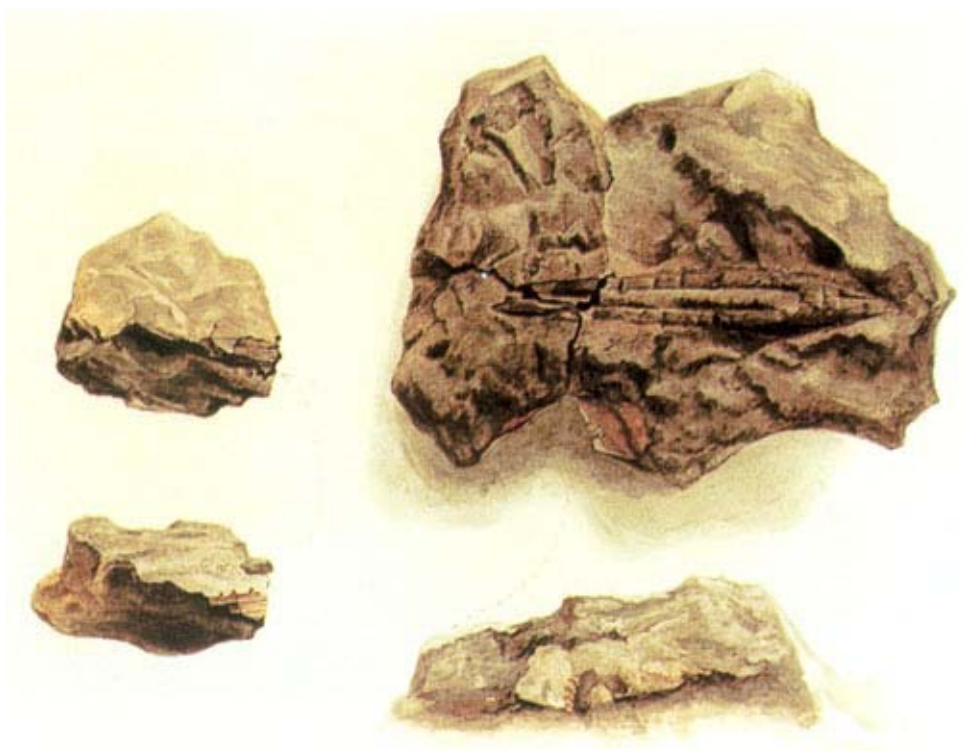


Figure 4. Indeterminate wood fragments from Lennel. Watercolour on paper, October 1894.

Although this is the only fossil that Beatrix names in her journal it is unclear which Museum she is referring to. In my estimation she means the NHM, London, since the sentence comes as an afterthought and was probably written after her return to London; moreover, elsewhere in her diary the Museum is always the NHM and there was one specimen on display there labelled *Araucarioxylon* from Lennel Braes.

In October whilst still at Lennel she painted the first of her fossil studies, four indeterminate wood fragments from the Lower Carboniferous of Lennel. A month earlier she had photographed (A.T.) 2011, what I take to be *Araucarioxylon* (= *Pilus antiqua* Witham). It is worth adding, however, that she had not yet identified it at NHM.³

The following year, 1895, the family spent much of April in Weymouth and Salisbury affording Beatrix ample opportunities for fossil hunting. She collected in the Oxford Clay:

“about the consistency of putty,”

and in the Portland Stone of Chalbury Hill where she took pictures of gigantic ammonites (*Titanites giganteus*). She also collected from the Kimmeridge Clay near Osmington and from the quarries near Chesil Bank. She also studied chalk fossils in Salisbury Museum.

After her return to London Beatrix painted her second study of fossils in May 1895. This comprised just two fossils – both of which appear to show the armour of an eurypterid.

Neither fossil is named but the locality given is Lennel, Coldstream (Lower Carboniferous).

At the end of May the family spent a week's holiday at Denbigh, where Beatrix was able to collect many new fossils including corals, crinoids and molluscs from two large nearby quarries in the Carboniferous Limestone.

Two days later Beatrix travelled alone to Stroud and the Huttons for the second time, where, as I have described above, she collected many more fossils and on her return to London went with Mr Lucey to the NHM.

The Potter's spent their summer holiday (July 26th – September 25th) that year in Windermere. Beatrix records that it was not until ten days later that she drove her pony up Troutbeck for her first great day of fossil hunting. She went again on the following Saturday, August 10th and then on August 15th she visited Sour Howes quarry where she collected very many fossils although:

“I was a little afraid of the quarrymen but they made no remark.”

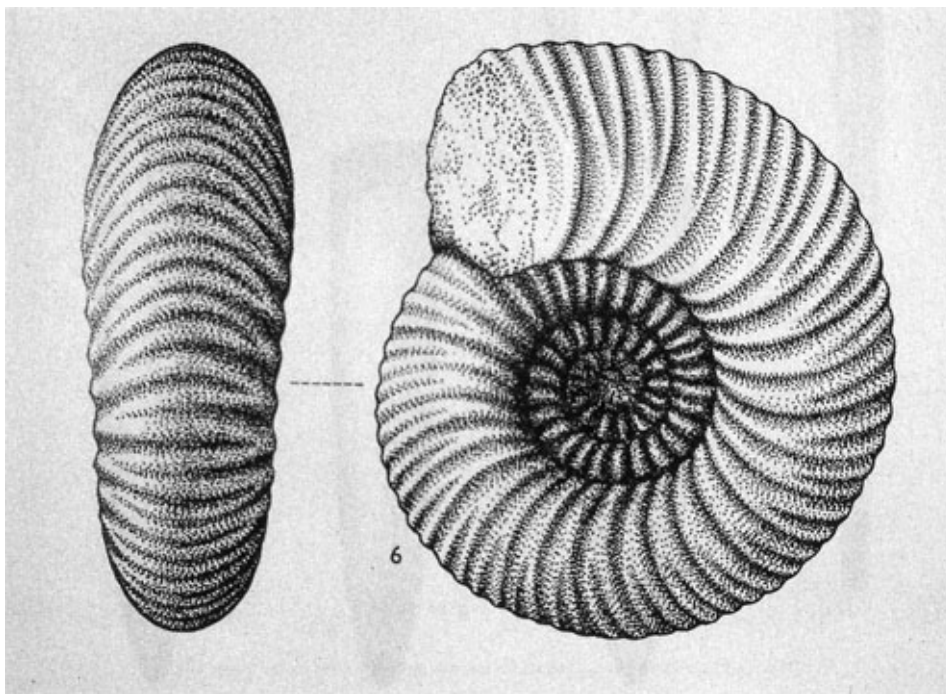


Figure 5. *Titanites giganteus* Portland stone.

As a direct consequence of her collecting activity Beatrix produced two studies of Troutbeck fossils both painted whilst in Windermere. The first study of six fossils, from the Applethwaite Beds at Sour Howes, was of trilobites, which she presumably got H.B. Woodward to identify. The second study of eight fossils, also from Sour Howes, comprised a mixture of fossils ranging from a graptolite to corals and a trilobite



Figure 6. Fragments of eurypterid armour. Watercolour on paper, May 1895.

pygidium. The painting provides precise locality data and was painted between August and September. One fossil, however, a crinoid stem of uncertain age, was painted on November 15th when she was back in London.

As well as collecting fossils Beatrix still had time to observe the effects of glaciation and to photograph *roche montones* on Elterwater Common, although she was unable to find ice scratches on the polished boulders. As at Lennel, she pondered the force which had scooped Langdale out of volcanic rocks and estimated it had been carved by the great northern ice flow.

From Windermere she went with her parents to Manchester where she spent an afternoon studying fossils in Owens College Museum (September 25th 1895).

A week later she was back in London studying fossils in the NHM. At the end of the month she was again in the NHM but this time studying insects, while on the afternoon of December 20th:

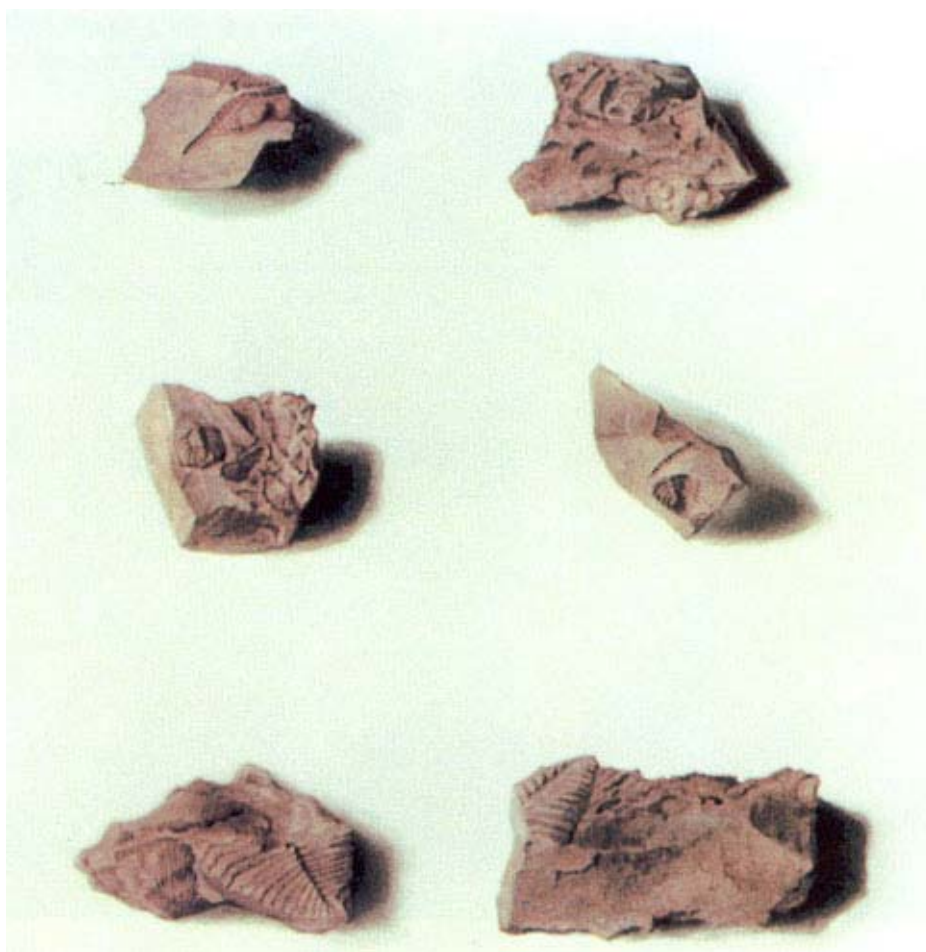


Figure 7. Six fossils from Sour Howes, Troutbeck. Watercolour on paper, August 1895. The fossils are all trilobites and comprise: top left *Tretaspis hadelandica*; top right *Acidaspis magnaspina*; mid left calymenid pygidium; mid right ecrinurid pygidium; bottom L. and R. *Toxochasmops marri*.

“Went to the Museum, very empty and quiet, studied fossils peaceably and afterwards the insects again – I sometimes wonder whether geology names the fossils or the fossils geology.”

Beatrix had been going regularly to the Museum on her own to sketch and identify specimens from about 1895 and had got to know both Dr H.B. Woodward and A.S. Woodward, his successor as Keeper of Geology. H.B. Woodward had two daughters, the eldest of whom was employed by her father to illustrate his papers and thus was a permanent visitor to the Geology Department throughout the 1890s. She befriended Beatrix and often acted as her chaperone when she visited her publisher, Warne.

Beatrix’ friendship with Miss Woodward gave her much more freedom of access to the geological collections at the NHM and as late as 1904 she remarks:



Figure 8. Eight fossils from around Sour Howes, Troutbeck. Watercolour on paper August – November 1895. Top left, monograptid from wall above Thickholme; top right, base of a solitary coral from Sour Howes; mid left and mid centre, a streptelasmatid coral from Stour Howes and Nanny Lane; mid right, a calymenid pygidium also from Nanny Lane; bottom left and centre, more streptelasmatid corals from Nanny Lane and Garbourne Road; bottom right, a crinoid stem from Garbourne Road – added on November 15 1895.

Copyright © Frederick Warne & Co., Courtesy of the National Trust.

“I have been working very industriously drawing fossils at the Museum, upon the theory that a change of work is the best rest.”

Interestingly, Beatrix also knew the Director of the Museum, Sir William Flower:

“He knows me occasionally but generally not at the Museum”

“Miss Rosalind suggested it was because I had got on a bonnet.”

What Beatrix had failed to realise was that her bonnet was covered in feathers and that early in 1896 Flowers had launched his campaign of conservation with the call for the banning of the use of feathers in millinery!

Her diary records the first Sunday Opening of the Museum on May 17th 1896 with her comment

“I always think boys are more mischievous on Sundays. I saw one trying the palms in the botanical department with his finger nails”.

On this occasion she avoided shaking hands with the Director and later visited the Stratigraphical Gallery.

Her annual visit to Stroud that year took place in November and it clearly renewed her interest in fossil collection:

“I had some pleasant grubbing in Huddinknoll quarries and triumphantly found a shark’s tooth” (probably *Asteracanthus*).

Over Christmas and the New Year 1897 Beatrix worked on her paper for the Linnean Society ‘On the Germination of the Spores of Agaricinae’ which was read on April 1st 1897. Then she worked on the painting and identification of the fungi and lichens she had collected during the previous summer.

After a visit to Kew and talking with Mr George Masse about her intended paper, Beatrix commented:

“By the way he told me something rather odd, that fungi went back to the Laurentian. I supposed he meant that contentious object of Sir W. Dawson. I can’t find it at the Museum. I prefer the sagacity of the man in the street.”



Figure 9. *Eozoon canadense* BMNH P. 3736. Côte St. Pierre, Quebec. Laurentian.

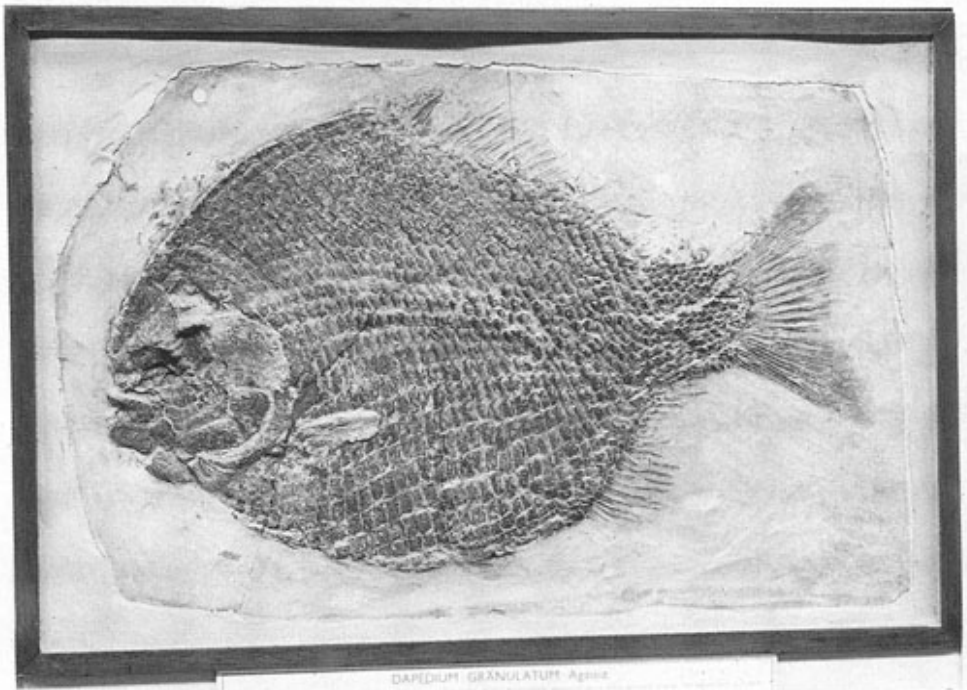


Figure 10 above, *Dapedium granulatum*. BMNH P3563. L. Lias Lyme Regis.
Figure 10 below, *Dapedium* – restoration by A.S. Woodward.

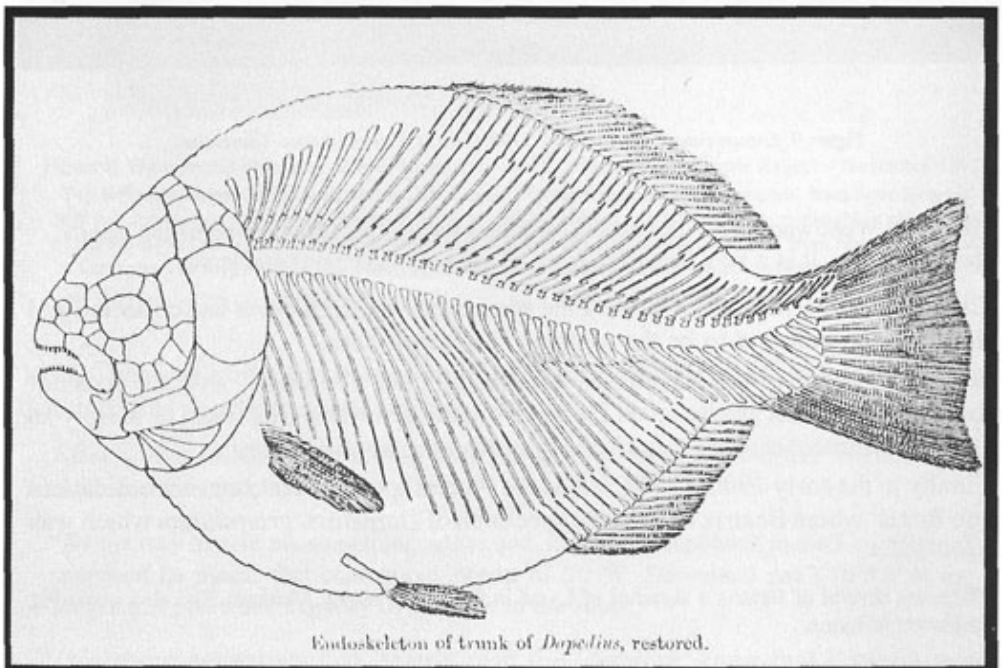




Figure 11. Harescombe Churchyard where Annie Coldrick is buried and whose funeral BP attended.

This comment shows that Beatrix read the literature, knew that Dawson was in charge of the Canadian Geological Survey and did not believe Dawson had found the earliest fungi! Then less than a month later (January 28th 1897) Beatrix visited the Museum and called on the Keeper of Geology:

“to ask Dr Woodward about the eozoon, Mr Masse having told me there were funguses in the Laurentian. It is a very beautiful green. He is a very pleasant gentleman.”

Clearly Woodward showed Beatrix the specimens which Dawson had collected and which Dawson believed to be the remains of Foraminifera.

Sadly this is one of the last entries in Beatrix Potter’s Journal – and she does not record whether or not she believed Dawson’s specimen was a true fossil or merely an artifact of sedimentation as it has subsequently been shown to be.

Finally, in the early 1900s (1904; 1905) the Potters spent several summer holidays in Lyme Regis⁴ where Beatrix collected a specimen of *Dapedium granulatum* which was identified for her by A.S. Woodward. Ironically this is the sister-species of *D. dorsalis* she had collected at Dumbleton in 1895! It is clear that Harescombe Grange and her Hutton cousins had a very considerable influence on Beatrix Potter’s life. Her first visit in 1894 not only sparked off her interest in fossils but also caused her to re-examine her attitude to the Origin of Species and religion.

She found herself in sympathy with Caroline’s outspoken agnosticism and did her best to counter Mary’s piety with explanations of the views put forward by Huxley and Darwin.



Figure 12. Sophia Hutton (née Holland)

“I brought tears into her eyes when I spoke about poor Annie Coldrick, the girl they had been so kind to, who is dying of consumption. I suggested that though Huxley was sufficient for an educated person like Caroline, it would be a poor exchange and indeed an impossible creed for the lower classes.”

And then later:

“It is not possible to appreciate religion in other people while oneself disbelieving creeds.....”

Nevertheless, Beatrix enjoyed the service in Gloucester Cathedral which she had gone to with Caroline. This visit was the result of a story which Caroline had related to her after she had confessed to believing in fairies longer than most and



Figure 13. Scotesquar – the quarry in the Lower Trigon Grit (known locally as Edge Quarry).

which eventually resulted in her writing *The Tailor of Gloucester*⁵. As well as attending the service Beatrix made sketches of the old streets round the city centre. Finally, on their return to Harescombe Grange she persuaded the coachman's young son to sit cross-legged on the kitchen table (like a tailor) so that she could sketch him.

On various occasions over the next six years Beatrix returned to Harescombe Grange and made more sketches of the streets around Gloucester Cathedral as well as interiors of some of the Cotswold cottages in and around Pitchcombe.

During one such visit she returned to London with two mice which had been caught in a cage-trap in the kitchen at the Grange and which she had rescued from the cook. These she called Tom Thumb and Hunca Munca and they appeared in the spring of 1904 in her book *The Tale of Two Bad Mice*.

Finally in the Autumn of 1912 after she had been proposed to by her future husband (William Heelis) she wrote a despairing letter to her cousin Caroline in which she outlined her parents' displeasure and objections to the intended marriage. Her free-thinking cousin replied immediately with forthright advice – to ignore her parents' wishes and to get married quietly.



Figure 14. Mary Hutton.

In the event her parents withdrew their objections. Beatrix and William got engaged in the Spring and married in the Summer of 1913.

In summary, Beatrix Potter collected fossils assiduously over a 10 year period. She painted a few and drew many others. It is even possible that she drew fossils for H.B. Woodward or at least assisted his daughter to illustrate some of his Palaeontological Society papers. Beatrix also photographed fossils and identified them by reference to the NHM collections. Perhaps she had hoped to emulate cousin Mary and grandmother Holland? Certainly the age of rocks, and their contained fossils, provided her with an intellectual stimulus which was missing from “the rock of ages.”

What, however, happened to her fossils? In all probability they were disposed of by her parents, following her marriage in 1913. All that remains is the specimen of *Asteracanthus* in the NHM and possibly *Magnosia* (*Arbacia*) in the Oxford Museum,

while there is a photograph of her specimen of *Araucarioxylon* (*Pilus antiqua*) in the Armit collection.

Acknowledgements

My grateful thanks to Mrs E. Gabb, Library Manager of the Armit Library and Museum for copies of the water colours of fossils and to Caroline Hutton for the loan of family photographs. I am also indebted to Frederick Warne and Co. for the picture of Troutbeck fossils.

Footnotes

1. Scotessuar is an adapted place name – reflecting the extensive quarrying of recent centuries – The Cotswold Way passes through the corner of the quarry. OE, Scott = a steep place, yfer = edge or brow of a hill.
2. The Reading Geological Collection has subsequently been transferred to the Oxford University Museum. Mary Hutton initially left her sea urchins to Professor Herbert Hawkins.
3. The six syntypes of *Pilus antiqua* from Lennel Braes are all in the NHM.
4. There are several of Beatrix's sketches of Lyme in the local Philpot Museum. She also wrote Pig Robinson in Lyme.
5. 22 of the 26 illustrations for the *Tailor of Gloucester* can be viewed in the Tate Gallery.

Reference

DAWSON, J.W. 1864. On the Structure of Certain Organic Remains in the Laurentian Limestone of Canada. *Quart. J. Geol. Soc.* **21**: 51–59.
