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# Spynie

[NJ 223 657] and others

## Highlights

Spynie quarries were the first source for *Leptopleuron* and *Ornithosuchus*, two abundant members of the Elgin Late Triassic fauna. Excellent specimens of the herbivore *Hyperodapedon* were found at Spynie in 1947, and more material may come to light with further quarrying.

## Introduction

The locality includes one main pit and up to nine smaller pits on Spynie Hill, just off the Elgin–Lossiemouth road and on the south shore of the former Loch of Spynie. The Lossiemouth Sandstone Formation here yielded the first remains of the procolophonid *Leptopleuron* and of the ornithosuchid *Ornithosuchus*, and some good material of *Hyperodapedon*. Most of the Spynie quarries are overgrown and/or filled with debris. One large pit is still clear, however (Peacock *et al.*, 1968, Quarry no. 4), and has been worked a little recently. Fossils could be found in the lower beds with further working. Neville Hollingworth collected odd bone pieces from quarry refuse in about 1980.

Spynie Hill was worked before 1790: 'Under a thin stratum of marsh soil, the whole of this ridge seems to be a mass of excellent hard freestone; of which there is a quarry, near the summit of the hill, that supplies a large extent of the country with millstones, and the town of Elgin and the neighbourhood with stones for building' (A. Gordon, *in* Sinclair, 1794, vol. 10, p. 629). The various pits were worked until the 1880s and do not appear to have operated again until recently. Moray Stone Cutters lease the main pit (to the east of the others) and have blasted in the 1980s (Figure 4.16).

In October 1851 William Young, a quarryman at Spynie, showed a small reptile, preserved as part and counterpart, to Patrick Duff (Anon., 1851). This was sent to London where various people examined it, including Charles Lyell, Gideon Mantell and Richard Owen. It was immediately recognized as a tetrapod, and was thus the first identified from Elgin (*Stagonolepis* was at the time still considered to be a fish). Since all agreed that the rocks from whence it came were Old Red Sandstone (Devonian) in age, this was obviously a very important animal — the oldest tetrapod then known, and Lyell delayed publication of his *Manual of Elementary Geology* (1852) in order to include a postscript about it.

Mantell, working with Lyell, and with his old friend Lambart Brickenden, who lived in Elgin, prepared a description, but Owen became the first author on the new reptile, publishing a brief unillustrated account dated 20th December 1851 (Owen, 1851a), naming it *Leptopleuron lacertinum* and interpreting it as a lizard. Mantell's illustrated description of the same animal followed in early 1852 and he named it *Telerpeton elginense*, interpreting it as a 'batrachian' (i.e. an amphibian) largely because he had allied it with some 'frogs eggs' from the Old Red Sandstone of Forfarshire. The controversy over the description of this reptile, and the political and philosophical infighting, are described by Benton (1983c).

Specimens of the rhynchosaur *Hyperodapedon* were collected at Spynie in the 1870s, and in 1891 (Anon., 1891) the first *Ornithosuchus* was discovered by George Gordon, clergyman and naturalist. This fossil, consisting of a partial skeleton and skull was described by Newton (1894b) as the new genus and species, *Ornithosuchus woodwardi*. Taylor (1920) mentions *Stagonolepis* and *Erpetosuchus* from Spynie, but there seems to be no evidence for these. Two fine skulls of *Hyperodapedon* were collected at Spynie in 1947 by Professor T.S. Weston and are now in the NMS.

## Description

In the main quarry [NJ 2225 6565], 20 m faces may be seen displaying grey jointed sandstone, highly siliceous at the top and more calcareous lower down, weathering orange. The joints may be filled with fluorspar, galena or sphalerite. The transition to the Cherty Rock (a sandy limestone and chert) is also exposed at the top. A 10 m deep pit, worked recently,

exposes softer greyish-yellow calcareous sandstone. (This is quarry no. 4 of the memoir — Peacock *et al.*, 1968, p. 68.)

The Geological Survey borehole in Spynie Quarry no. 4 yielded the following section, in summary (Peacock *et al.*, 1968, p. 68):

	Thickness Ft in
Lossiemouth Sandstone Formation:	
Cherty Rock	5 0+
Sandstone, hard and siliceous at top, softer below	76 6
Yellowish calcareous siltstone with thin beds of gritty sandstone	26 10
Presumed Old Red Sandstone:	
Siltstone and sandstone with galls of green clay. Some reddish brown colouration	40

Early writers did not specify precisely which of the pits yielded the specimens of *Leptopleuron*, *Hyperodapedon* or *Ornithosuchus*, but the reptiles at Spynie appear to have been found low in the Lossiemouth Sandstone Formation, as at Lossiemouth East Quarry (see above). Peacock *et al.* (1968, p. 68) identify the two westernmost quarries as those that yielded the reptiles. Quarry no. 1 [NJ 2192 6555], now filled in, lay outside the Hill of Spynie and exposed 5 m of fine- to coarse-grained sandstone overlain by a few feet of broken rock. Large-scale dune-bedding occurred in the top of the face. This quarry is supposed to have yielded *Hyperodapedon* (Gordon in Huxley, 1877; Linn, 1886; Peacock *et al.*, 1968, p. 68).

Quarry no. 2 [NJ 2206 6557] is small, but deep (12–15 m), and lies in the Spynie Hill wood. This is supposed to have been 'a much larger quarry in which specimens of *Leptopleuron* (*Telerpeton*) were found' (Peacock *et al.*, 1968, p. 68). It should be noted that this quarry (no. 2, Peacock *et al.*, 1968) presently contains very large trees, probably over 100 years old. The type specimen of *Leptopleuron lacertinum* 'was found... at the bottom of a shaft which had been sunk through 51 feet of sandstone down to a soft rubbly bed' (Duff in Murchison, 1859, p. 435). Gordon (1859, pp. 45–6), added that the type specimen of *Leptopleuron lacertinum* was found *in situ*: 'it was extracted from the living rock, deep in a quarry opened on the west end of the hill', and Martin (c.1860) stated that the specimen was 'found low down, in the bottom of the quarry'.

The specimens of *Ornithosuchus* collected by quarrymen in 1891 may have come from the large quarry still in operation [NJ 2225 6565], this being quarry no. 3 of Peacock *et al.* (1968, p. 68). This was also the site of the two skulls of *Hyperodapedon* collected in 1947.

The bone material is often powdery, or replaced by iron oxide, and casting is the best method of study, as for the material from Lossiemouth East Quarry (see above).

## Fauna

### Anapsida: Procolophonidae

*Leptopleuron lacertinum* Owen, 1851

(=*Telerpeton elginense* Mantell, 1852)

2 individuals: NMS, BGS(GSM)

### Archosauromorpha: Rhynchosauridae

*Hyperodapedon gordonii* Huxley, 1859 3 individuals: BGS(GSM), NMS

### Archosauria: Crurotarsi: Ornithosuchidae

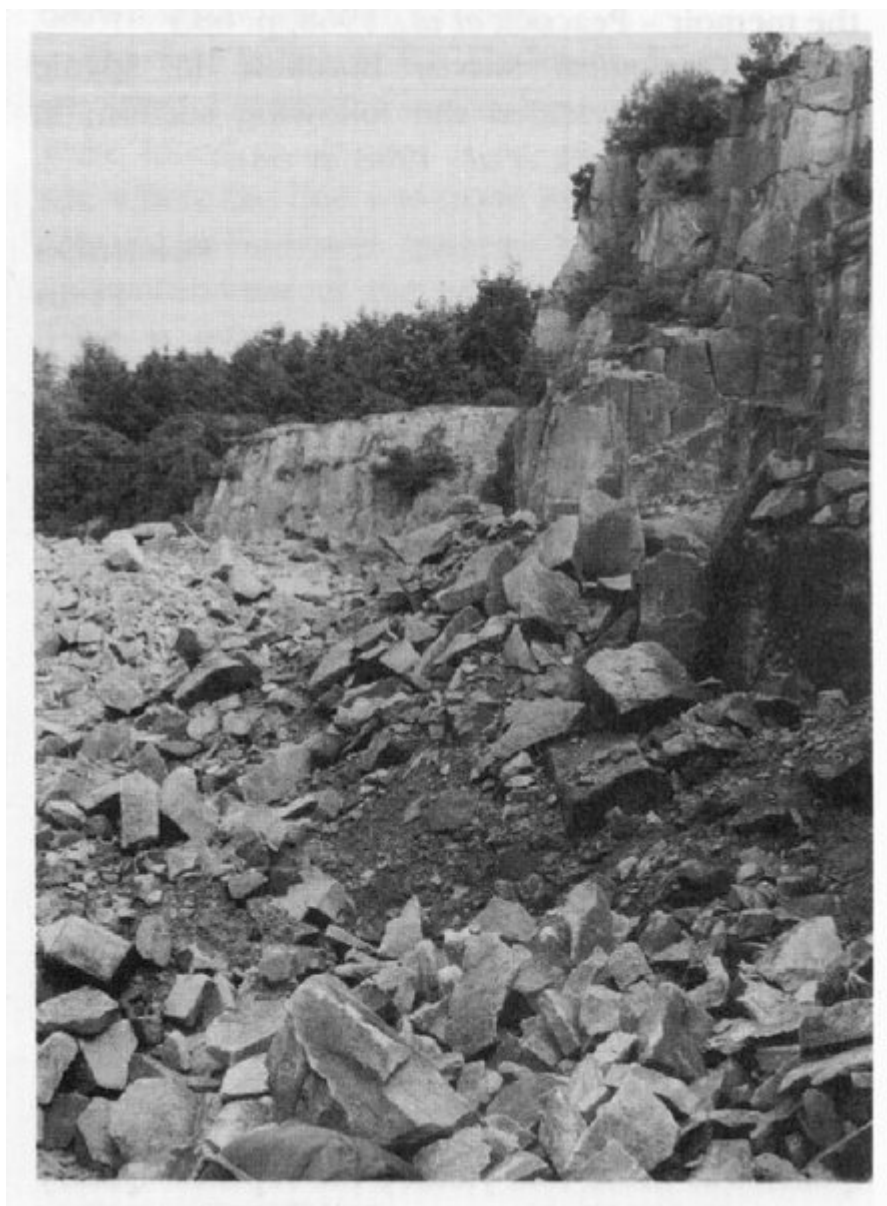
## Interpretation

Descriptions of the reptiles *Leptopleuron*, *Hyperodapedon* and *Ornithosuchus* are given in the Lossiemouth East Quarry report (see above).

## Conclusions

Spynie is important as the first recorded source of *Leptopleuron* and of *Ornithosuchus*, and the site has the best potential for future finds thereby giving it considerable conservation value. Specifically, the specimens of both *Leptopleuron lacertinum* are some of the best, and two of the best preserved skulls of *Hyperodapedon* yet known were collected in 1947, the last substantial find of reptiles from any of the Lossiemouth Sandstone Formation sites.

## [References](#)



(Figure 4.16) The main quarry at Spynie, looking northwards along the east face. Blasting has just taken place, leaving broken blocks that have, from time to time, yielded fossil reptile remains. (Photo: M.J. Benton.)