CASE 10

‘Fossil Fish’

Fossil fishes started to be found around the Moray Firth from the late 1820s onwards. A network of enthusiastic and knowledgeable locals supported the work of professional scientists, including Roderick Impey Murchison (British Geological Survey) and Louis Agassiz (University of Neuchâtel).

Agassiz described and named many of the finds, culminating in his celebrated monograph 1844-1845 work *Monographie des poissons fossiles du Vieux Grès Rouge* (Monograph on Fossil Fish of the Old Red Sandstone). Local contributors included John Grant Malcolmson, Lady Eliza Gordon Cumming (both from Forres), Alexander Robertson (Inverugie), William Stables (Cawdor) and Hugh Miller (Cromarty). In classifying the fishes, Agassiz’s specimens often include the donors name in his species designation.

1. *Coccosteus cuspidatus* – disarticulated head and trunk armour

Found by Malcolmson and Stables at Lethen in 1840. Figured as Plate 11 from Agassiz’s monograph. Most of the figures were drawn by Austrian artist and illustrator Joseph Dinkel.
ELGNM: 1978.131.6

Figure 1: Coccosteus cuspidatus. Block is ~18cm wide

2. *Cheirolepis trailli* – articulated skeleton missing anterior- and posterior-most tips

Initially named *Cheirolepis cummingae* after Eliza Gordon Cumming but this is now recognised as the same species as *C. trailli.* Figured as Plate 12 from Agassiz's monograph. Agassiz noted that: *this species is quite common at Lethen-Bar, where it was discovered by Lady Gordon Cumming*.
ELGNM: 1978.413.4

Figure 2: Cheirolepis trailli. Block is ~15 cm wide

3. *Pterichthyodes milleri* – head and trunk and pectoral appendage

This bizarre armoured fish was the first species to be found by Malcolmson and Stables at Lethen Bar and is named after Miller. Miller, a stonemason and self-educated man, became a good friend of Grant Malcolmson who introduced him to a wider scientific circle. *P. productus* (synonymous with *P. milleri*) is figured in Plate 5.
ELGNM: 1978.136.4

Figure 3: Pterichthyodes milleri . Block is 15am wide.

4. Plate 31 from Agassiz's monograph

Plate 31 shows several different species of fossil fish, including *Stagonolepis robertsoni* (Fig. 13 & Fig. 14). Fig. 13 shows the drawing that Alexander Robertson sent to Agassiz of the plates at 'natural size'; Fig. 14 is a drawing from a calotype of the fossil produced by Adamson and Hill, which Agassiz obtained from the Geological Society in London (LDGSL/615/43/2). The drawing shows the specimen 'reduced to half its natural dimensions'.

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Figure 4: Plate 31 from Agassiz's monograph

When more fossils were discovered in the Lossiemouth quarries, it became clear that Stagonolepis was a reptile and not a fish! The similarity between the rocks of the Devonian Old Red Sandstone and those of the Permo-Triassic New Red Sandstone meant that the origin of both fossils and trackways was a subject of intense debate.

5. Scutes from *Stagonolepis robertsoni*

This is the fossil that was found by Patrick Duff in 1844. Originally thought to show fish scales or plates, it was later realised that these were scutes from a reptile. The specimen has been examined by several important palaeontologists, including Professor Thomas Henry Huxley (indicated by the red ’27’), and William Taylor (by the black ’53’). The Fig. and Type. labels refer to Huxley’s first scientific description of the reptile in 1859.
ELGNM: 1858.10

Figure 5: Scutes from Stagonolepis robertsoni. Specimen is 20cm wide

6. Patrick Duff from an 1844 calotype

This portrait shows Duff (1791-1861), ‘eminent’ amateur geologist, Town Clerk and Elgin Museum’s first Secretary, holding the fossil of *Stagonolepis robertsoni* that was found in 1844. The fossil was discovered by a labourer in Lossiemouth Quarry. The calotype (also by Hill and Adamson) is the earliest photograph of a vertebrate fossil.
ELGNM: 1978.580

Figure 6: Patrick Duff from an 1844 calotype

Note:

Today Agassiz's pseudoscientific research into human origins is denounced as racist and his views considered abhorrent. In highlighting his seminal work on the Old Red Sandstone, Elgin Museum's Geology Group are not indicating support for his subsequent ideas of polygenism. Scientific advancement, through understanding of DNA, has shown that there is only one surviving human species: we are all *Homo sapiens*

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