

WHAT'S IN A NAME?

INTRODUCTION TO THE 'GILL' FOSSILS



While much fuss is made in the media each year when new species of dinosaur are unearthed, it often goes unreported when new fossil invertebrates (animals without backbones) are found, although these discoveries are often older and certainly much rarer.

As a geology evening-class student during the 1980's, on two separate occasions, Jackie Gill found firstly part of an early shrimp-like crustacean, and later the wing of a grasshopper-like insect while on field trips led by Dr Paul Madgett of Harrow College of Technology (Now University of Westminster). Around 20 or 30 years later they were proved to be new species and took her surname as part of their specific Latin names.

Fig 1. Jackie Gill on the Forest of Dean field trip in December 1982.

ETOTABLA GILLAE

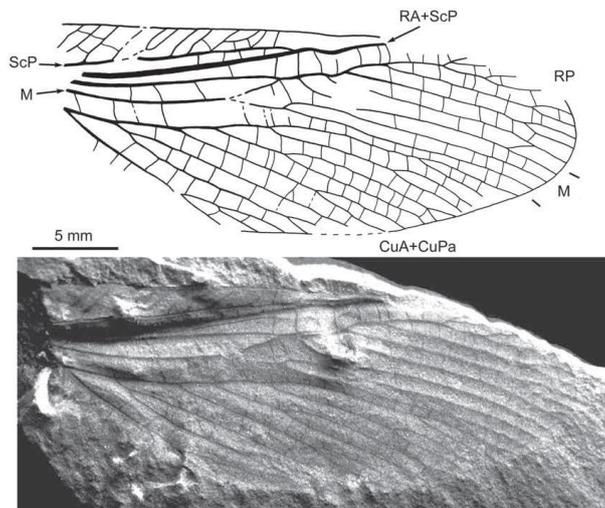
Discovery

Jackie Gill found the 3 centimetres long fossil insect wing in the Upper Carboniferous Coal Measures spoil heaps at Writhlington Pit, Radstock, Bath & NE Somerset. She was doing a quadrat survey of fossil plant material as part of a palaeoenvironment course and realised that it didn't match any of the plant categories on her form. **Dr Ed Jarzembowski**, palaeoentomologist (*expert in ancient insects*) was on site and asked to be sent a photograph of the wing for identification.



Fig 2. Writhlington Pit, Radstock, Carboniferous Pennsylvanian Coal Measures spoil heap is mechanically turned over periodically to expose fresh material for fossil hunters. A wide range of plant and insect fossils, including the new species of 'early grasshopper' have been found here.

Naming



Following 23 years of work comparing firstly photographs, and later the fossil itself, to thousands of specimens across America and France, Ed Jarzembowski discovered that it was a new genus and species of Archaeorthoptera (*ancient proto-grasshoppers*). In 2010, in his paper about four new insect species from Writhlington, he named it ***Etotabla gillae***. The genus '*Etotabla*' is an anagram of its nearest relative and the species '*gillae*' after Jackie Gill as finder of the 'holotype', ie *single physical example*. (The ending '-ae' is due to the discoverer being female).

Fig 3. Line drawing of ***Etotabla gillae*** wing showing the veining that distinguished it from other similar species found in the UK, France and USA.

Fig 4. ***Etotabla gillae***, wing of the new species of 'proto-grasshopper,' found by Jackie Gill at Writhlington in 1987. Approximately 30mm in length.

Figs 3 & 4 reproduced with the kind permission of Prof. Edmund Jarzembowski, Scientific Associate of the Natural History Museum, currently Visiting Professor at the Nanjing Institute of Geology and Palaeontology.

Description

The specimen is a negative imprint of the left forewing of an early form of grasshopper, from approximately 310 million years ago, the 'Pennsylvanian' series of the Upper Carboniferous era. The closest full body specimen is that of the American '*Miamia bronsoni Dani*' from similar age rocks at Mazon Creek, Illinois.

SCHRAMOCARIS GILLJONESORUM

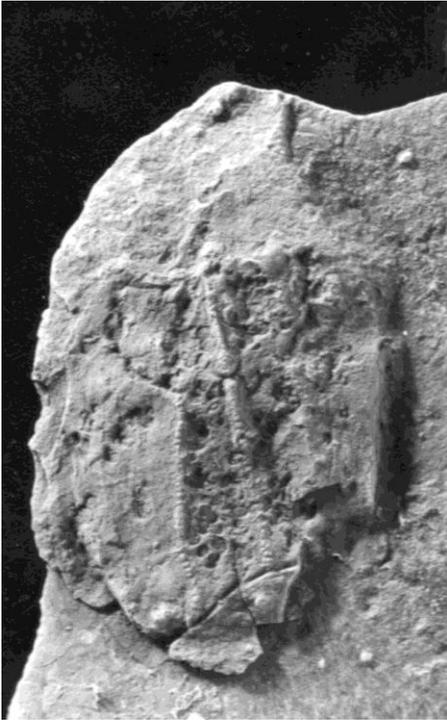
Discovery

The 'early shrimp' fossil, measuring just 3 centimetres long, was found by Jackie Gill in April 1982 while examining the Lower Limestone Shales, close to the junction between the Devonian and Carboniferous at Stenders (Cement Works) Quarry, Mitcheldean, Forest of Dean, Gloucestershire. At the time she thought it was the head of a tiny bony fish.



Fig 5. **Stenders Quarry, Mitcheldean, Gloucs.** in December 1982. The 'early shrimp' fossil was found in the near-vertical Lower Carboniferous Lr. Limestone Shales in the centre of the picture.

Naming



In February 1983 she took it to the Natural History Museum for identification, where it was described as '*the earliest known eumalacostrocan (claw-less crayfish*) in the British Isles*' by the late **Sam F Morris**. (*Term coined by Prof Fred Schram.)

In February 2011, following Jackie Gill's enquiries about Sam Morris's research, the specimen was unearthed by his successor, **Claire Mellish**, who did some research on it, and in October 2015 it was the subject of a paper by **Dr Neil Clark** (Hunterian Museum, Univ of Glasgow) who named it as a new genus and species of early shrimp, *Schramocaris gilljonesorum*. The genus '*Schramocaris*' was named in honour of **Prof Fred R Schram**, palaeocarcinologist (expert in the science of crustaceans), and the species '*gilljonesorum*' after **Jackie Gill** as finder of the first specimen, and **Mr & Mrs I Jones** from Doward, Herefordshire, who discovered many further specimens (*the ending '-orum' is plural due to there being multiple finders*).

Fig 6. *Schramocaris gilljonesorum*, carapace (shell) of the new species of 'early shrimp' found by Jackie Gill at Stenders Quarry in 1982. Approximately 15mm in length.

Description

It is the fossil carapace (shell) of an early shrimp-like crustacean that lived in the 'Mississippian' series of the Lower Carboniferous around 354 million years ago. No limbs, eyes or antennae have been observed on any specimens so these have to be conjectured but the tail is fanned in all where it is present.

"I cannot emphasise enough how rare it is to find a new genus of fossil crustacean from the Carboniferous. In Britain, the last new genus was described in 1979 - to put this in context, there are new species of dinosaur being found every year." Quote from Dr Neil Clark, The Hunterian, 2015.

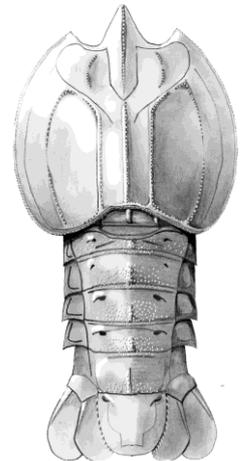


Fig.7 Full-body reconstruction of *Schramocaris gilljonesorum*.

Drawing reproduced with the kind permission of Dr Neil D. L. Clark, Curator of Palaeontology, The Hunterian, University of Glasgow.

References

Etotabla gillae - "New basal neopterans from Writhlington" (UK, Pennsylvanian) by Olivier Bethoux & Edmund A Jarzembowski. *Alavesia*, 3:87-96 (2010)

Schramocaris gilljonesorum - "A new early Carboniferous crustacean from the Forest of Dean, England" by Neil D L Clark, Rollo Gillespie, Sam F Morris & Geoffrey Clayton. *Journal of Systematic Palaeontology*, 2015.