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Author(s): Thompson, S.

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Workshop & Conference Reviews

Two GCG workshops: Marine Reptiles and Microfossils
- Steve Thompson: Keeper of Natural History, Scunthorpe Museum

These are a pair of workshops that I attended last year, for different reasons and which turned out to be useful in different ways. Each illustrated the fact that you can't necessarily tell from the programme how an event is going to be useful.

Marine Reptiles

The first of the workshops was a marine reptiles workshop, run by Mark Evans and Arthur Cruickshank at Leicester Museum in June. I attended this because this represents a part of the palaeofauna that we are able to collect from our collecting region, and because it is rather a specialist subject, and I would always need to turn to the experts for in depth knowledge of the subject.

Mark began by giving an outline background to the subject, noting that these animals represented some of the most iconic of museum specimens, and are part of the reason why the Jurassic has become so well known, although, as with dinosaurs, they are by no means all Jurassic in age. And it was pointed out that, of course, these animals are not, in fact, dinosaurs themselves. Their relationships to other vertebrate lines was briefly looked at and the fact that they were only secondarily marine, having been terrestrial animals that re-invaded the marine environment. The modifications required to allow this to happen were considered, and it was pointed out that the locomotion method for many of them, including the well known plesiosaurs was not swimming as such, but flying underwater.

From the outset, it was clear that I had no more than a rudimentary understanding of the field, as it turned I wasn't really aware of even the basic grouping of marine reptiles. This was where we moved into the more detailed part of the workshop, looking at the four principal reptile groups, as divided by the skull structure.

There was then a substantial period spent looking at the different groups of animal, some 18 groups in all. For each one, we looked at the identifying features and the geological range in which it lived, and picked up on those species that were known from the British record.

We recapitulated on the recurring evolutionary themes exhibited by these animals and looked at the distribution of families through time. We then looked at the most common, or at least the most familiar, of the families, the ichthyosaurs, plesiosaurs and crocodiles, in more detail and with regard to the British record.

The workshop finished off by looking at a range of specimens form the collection at Leicester, to give people a hands on experience of the actual fossils.

The workshop was extremely interesting, particularly when these are beasts that I might expect to be found in my own patch. Indeed, when one was reported only a month or so later, I was in a good position to call on the expertise I needed to deal with identification and recovery. (Sadly, although the report was accurate, two days digging showed that the

original, very promising finds (a series of large vertebrae) were all that had been preserved at that spot. Nevertheless, such finds are always a good possibility, and it is comforting to know that there are people to call on when needed.)

I can also recommend the workshop to other people, should it be run again. These animals are among those most familiar to the layman, and so form a good deal of the interest in natural science collections. I believe you can not know too much about these things and this represents a good way to acquire a little bit more knowledge about something that you may well be asked about.

Micropalaeontology

My motivation for attending this workshop was really just one of personal curiosity. Like most curators, I suspect, I have no microfossils in my collections (or at least no specimens that were collected for this purpose), and so this was not likely to impact upon my own professional activities. Or so I thought. But it just goes to show that you can never tell what things will come in handy, as I shall explain later on.

The workshop was run by Giles Miller and his colleagues at the Natural History Museum in September and we began with a tour of the collections. These do not necessarily have the highest profile among the NHM's collections, but they are substantial collections, and microfossils are of great importance in both academic and commercial research. The collections at the museum have been strengthened in recent years by the acquisition of the BP collection and that of the University of Aberystwyth, both of which cover most microfossils.

We began with an introduction to micropalaeontology in its broadest terms with a run through of all the main microfossil groups, and how they are dealt with in the department, and Clive Jones gave us a tour of the collections. The problems faced in the documentation, preparation, conservation and use of these specimens are rather different to those faced by most of us, who can at least see the objects we are working. So how do you label a specimen that is less than 1/20mm across? Such objects are mounted for use with a microscope, and this led onto a discussion of mounting methods, and how this related to the type of microscopy used.

Conservation of the material is not confined to the object itself, because the mount and mountant are equally to be accounted for in maintaining the collection, and the various different aspects of conservation were looked at. In addition to the labelling specimens, the broader aspects of documentation were discussed, and we were shown the database development that is currently taking place. Also shown were some of the databases that have already been developed, including those containing images and which are being developed for online use. These are available through the NHM website, and a particularly good example is that of the Duxbury collection, which we were shown by Andy Henderson, who had been developing this. It's well worth a look when you have a spare moment (http://www.nhm.ac.uk/palaeontology/ and follow the links to micropalaeontology).

We also had a look at how they generate many of these images, and Clive Jones demonstrated the techniques. Because the depth of field of the microscopes is so small, only a small part of a specimen is in focus at any one time. They get round this by taking many exposures, changing the focus slightly each time, and then cutting and pasting among the

images using PhotoShop. I had, in fact done this myself to get an image of an insects eye using pictures taken down our museum microscope. It was kind of reassuring that the decidedly jury-rigged effort that I had used was actually exactly the same as that used by the professionals. To be fair, though, I should point out that they have now acquired some software that very cleverly does this automatically, turning what was once hours of painstaking and eye-straining work into a push of a button job.

We finished off by going down to the conservation labs, where Lorraine Cornish and Dervilla O'Dwyer showed us how they are dealing with the cleaning of a set of glass models of microfossils. These are the most beautiful and unbelievably delicate creations, some consisting largely of scores of fine glass filaments. The mere contemplation of trying to clean such objects would be enough to make me want to go and lie down for a long time, but this is currently a research project for some of the conservation team, to try and establish the most effective ways of restoring these stunning items.

So, all in all, a fascinating workshop, and one which actually may turn out to have a practical benefit. I had always assumed that trying to use microfossils was beyond the realms of possibility for mere mortals such as myself, although I have looked at the possibility of sectioning limestones to see the fossils contained therein. However, after discussing things with the staff there, I have decided to see if I can extract some fossil from the abundant supply of mudstones we have in our area. People are fascinated by fossils in the first place, and to be able to show them these tiny animals and the exquisite detail they exhibit would be a most unusual and popular project. But I may well need some help, so I may be heading back for more advice.

Solving fungal problems in heritage collections
- Simon Moore, Natural Sciences Conservator

All day seminar by Mary-Lou Florian at the Natural History Museum,
6th November 2003.

Based around her rather cryptically titled book *Fungal Facts* (publ. *Archetype Publications* 2002) and which was part of the seminar package, Mary-Lou Florian of the Royal British Columbia Museum in Victoria, gave an intense and mind-boggling day of facts about the way that fungal organisms affect and grow in the collections that we tend. Assisted by James Black of *Archetype Publications*, who wrestled with perverse carousel projector magazines, she took us back to basics, outlining many of the facts and factors that we, as conservators, once (may have) learned but largely forgotten. This included the definitions of humidity and the building blocks of water physics and how this can both affect and effect fungal growth. We were also reminded about differentiating between slow freezing causing membrane-piercing ice crystal growth as opposed to blast freezing which preserves cell membrane integrity and how glycerol prevents freezing by acting as a reducer for water eutectic.

Since she was talking about ascomycete fungi and their forms of reproduction we learned much about conidial formation, their differentiation from spores and how they can be easily distributed among all sorts of heritage media, especially paper. We looked into the staining of conidia, using eosin, to test their viability and their causing fox spots on paper and how to differentiate from iron spots and that such fungal growth usually causes aes-