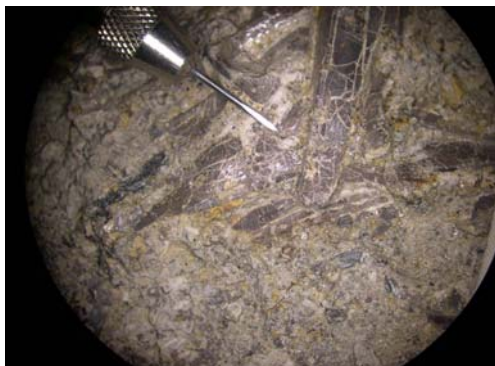


Temporary Gap-Filling to Stabilize an Exploded Matrix for Fossil Preparation: The Sand and Butvar B-76 Technique

Preparators are often faced with the difficult task of extracting small, delicate elements from sediments that have cracked, expanded and exploded the bone. Open cracks allow the matrix to dislodge and break unpredictably in response to the pressure of the aircsibe or needle, and this can damage the bone within. The Sand and Butvar B-76 technique was developed to address this problem in a block from Ghost Ranch (New Mexico) containing a dense assemblage of small, partially articulated dinosaur skeletons.



The matrix is a mudstone with copious inclusions of fish fragments, concretions, charcoal and other material. The bone is dense and hard but fractured and very thin in places. Cracks throughout the matrix and bone have expanded so that the fragments are separated by gaps. Before preparation it was necessary to stabilize the surface by packing a rigid, gap-filling material into all visible cracks. This material had to be strong enough to resist the force of an aircsibe or needle but be easily removable and re-workable.

I used a mix of clean children's playbox sand and smaller-grained black aquarium sand. The mixed grain sizes were for tighter packing and the mixed color was aesthetic.



The sand was mixed with Butvar B-76 (polyvinyl butyral) in ethanol to form a cement that was pressed into the cracks and allowed to dry overnight.

Butvar B-76 is a weak adhesive and is easily removable with a needle or aircsibe, is readily soluble in ethanol that has a relatively low toxicity, and it has acceptable aging properties if any remains after preparation.

After filling the gaps on the surface the matrix could be gradually removed in a controlled manner, from the top down. The sand and Butvar B-76 mix was applied, removed and re-applied to cracks and gaps in stages as they were revealed.



This technique was successful for the preparation of this block and would probably be appropriate and effective for a variety of matrices.