2011 Preaprator's Poster session abstracts

THE EFFECTIVE USES OF POLYESTER QUILT BATTING FOR CONSTRUCTING PLASTER JACKETS

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Polyester quilt batting has been tested for advantages over other jacketing media particularly burlap, plaster-infused gauze bandages and fiberglass air filter. Polyester has proven itself in industry as being stronger and more durable than natural fibers. Burlap and gauze jackets require additional layers and weight to decrease flexibility; while fiberglass and polyester air filters can be used to construct lightweight, rigid jackets. Fiberglass has restricted use to laboratory and collections settings due to the preventative measures that must be taken to prevent adverse health effects, such as irritation to skin, eyes, digestive system, and respiratory system. Polyester quilt batting is composed of a similar mesh as is fiberglass air filter, and is similarly effective in crafting lightweight, inflexible jackets. There are no known adverse health effects with polyester. Polyester quilt batting is also more affordable than alternative materials, reducing the need to buy multiple materials for varied jacketing techniques. Comparison of the jacketing material included egg drops with eggs contained in burlap and quilt batting jackets. Jackets were constructed with conventional means for common field and lab settings, using toilet paper as a cushion and separator. Drops were performed at a uniform height of 80 centimeters, resulting in slightly less egg breakage in quilt batting jackets. This is likely due to the reduced mass and force of impact. Some human error included eggs breaking while opening jackets and imperfections in the interior surface of jackets leading to cracks in eggshells. The overall benefits of using polyester quilt batting, to cost as well as material integrity and versatility makes it preferable to most other materials, especially fiberglass air filters.

A TEST OF THREE SOLVENT-BASED CONSOLIDANTS FOR FIELD USE IN THE RAIN

----CAVIN, Jennifer, John Day Fossil Beds National Monument, Kimberly, OR, USA

An experiment was undertaken to determine which of three solvent-based consolidants would hold up best in a field situation wherein a fossil is discovered, consolidated, and left in-situ in a rainy climate for collection at a later date. Locally obtained road gravel was dry sieved and washed to obtain a sample of very coarse sand, between 1 – 2 mm in grain size. The dried sand was glued to wooden dowels using one of the following consolidants: polyvinyl acetate (PVAC, B-15), methyl methacrylate (B-72), and polyvinyl butyral (B-76).

The glue was allowed to dry overnight, and the sand encrusted dowels were weighed. Each of the dowels was positioned over a cheesecloth covered sieve and placed in a shower to simulate rain. After one hour, the dowels were removed from the shower and allowed to thoroughly dry. The dried dowels were then weighed to determine the percentage of material that was lost due to the falling water. A quick visual analysis suggested that the consolidants performed similarly, and detailed analysis supported this finding. For all test dowels, approximately 2% of the sand grains were washed away after an hour of simulated rain, demonstrating no significant difference between consolidants. The process was then repeated, with the dowels subjected to two more hours in the shower. Very few sand grains on any of the dowels were washed away in this second wetting, thus showing no significant difference, in this experiment, between PVAC, methyl methacrylate, or polyvinyl butyral. This suggests the consolidants are relatively impervious to precipitation, and weathering may be a result of other factors. Future experiments will include allowing sand encrusted dowels to soak for various periods of time submerged in water and examining the effects of temperature fluctuations. It is suggested that plastic dowels,

or PVC pipe, should be used in additional experiments to reduce the drying time required.

FLESHING OUT A FOSSIL FIND
----KEILLOR, Tyler, University of Chicago, Chicago, IL, USA; SERENO, Paul, University of Chicago, Chicago, IL, USA
Using Eodromaeus murphi as an example, the careful planning and use of a variety of disparate materials and techniques necessary to sculpt a life reconstruction are demonstrated. Establishing a pose for the armature, and then a plan for how to mold the completed sculpture, should proceed hand in hand before modelling begins. To avoid silicone mold inhibition, the model should be sculpted with sulpher-free plasticene clay. A stock or custom glass eye can be ordered after establishing a proper diameter, based upon the orbital opening of the skull. Photographic reference of varied extant taxa should be used to authentically detail the form, and inspire the coloration. Intrinsic tinting of resin pre-paints the cast model with a scratchproof base coat. In this example of a basal theropod, a flocking gun can be used to apply simple hair-like protofeathers. Cast dental acrylic teeth effectively mimic enamel. A moist appearance for the mouth can be achieved with a glossy acrylic spray, while the skin might be dulled with a matte clear coat, especially to avoid hot-spots during photography.

THE MAKING OF THE AGE OF MAMMALS: A BEHIND THE SCENES LOOK AT EXHIBIT PREPARATION AND DISPLAY
----RHUE, Vanessa, Natural History Museum of Los Angeles County, Los Angeles, CA, USA
The new Age of Mammals exhibit at the Natural History Museum of Los Angeles County showcases Cenozoic fossils in a new light. Over 120 vertebrate fossil specimens are used to tell the stories of how continents move, climates change, and mammals evolve. The expertise of museum curators, fossil preparators, and design professionals brings to life mounted skeletons, isolated elements, fossil replicas, and touch specimens in a dynamic and interactive setting. Laboratory work spanned over three years to prepare, repair, mount, and cast fossil specimens. The preparation and mounting process of our juvenile sperm whale, Aulophyseter morricei, and the new desmostylian, Paleoparadoxiidae, highlight some of the challenges and achievements of the exhibit. In addition to selecting specimens and providing the intellectual framework, museum curators and consultants were responsible for label copy, design, illustration, multimedia, fabrication, mounting, and installation. The exhibit, Age of Mammals, received outstanding reviews from a wide variety of media outlets.

THE COOPER CENTER: A NOVEL PARTNERSHIP FOR THE MANAGEMENT OF PALEONTOLOGICAL RESOURCES
----RIVIN, Meredith, California State University, Fullerton, Fullerton, CA, USA
Paleontological mitigation in Orange County, California, over the past 35 years has resulted in an enormous collection of fossils spanning the Jurassic through Recent time, including particularly significant collections of Miocene marine mammals. The John D. Cooper Center has been established as a curational facility through partnership of the County of Orange and California State University, Fullerton. This novel relationship will allow for the establishment of a consistent and effective management and research program that will benefit students of Cal State Fullerton, the citizens of Orange County, and the paleontological community. The goals for the Cooper Center are to begin processing the large backlog of unprepared fossil material, to bring the collection up to modern curation standards, and to reduce overcrowding that prevents the accessioning of any new collection material. The bulk of this effort will require the support of students and volunteers, through community involvement and the development of a vertebrate paleontology program at Cal State Fullerton. This unique partnership may serve as a template for the management of other collections in the future.

NEBRASKA'S HIGHWAY PALEONTOLOGY PROGRAM: 50 YEARS OF LIFE IN THE PAST LANE

----TUCKER, Shane, University of Nebraska State Museum, Lincoln, NE, USA

Whenever the surface is disrupted in Nebraska, whether it is digging the foundation for a home or building a highway, there is a distinct possibility that fossils will be uncovered. Large, heavy earth-moving equipment can irreparably damage fragile bones yet many of these prehistoric remains would remain buried for millennia without construction. Without coordinated mitigation efforts, vast amounts of information critical to the interpretation of climate and life history in North America would be lost.

Nebraska has been a leader in fossil mitigation efforts for more than 50 years. The Nebraska Department of Roads (NDOR) has long been cognizant of its impact on these non-renewable resources having included a section on paleontological discoveries in their 1937 specifications for highway construction. In 1960, Nebraska created the nation's first full-time program devoted to fossil recovery on road construction projects. This cooperative effort between the University of Nebraska State Museum (UNSM) and NDOR prevents the destruction of unique, irreplaceable scientific resources. Backed by state and federal legislation, the Highway Paleontology Program has collected approximately 200,000 fossil vertebrate specimens, including 20 holotypes, from more than 150 localities in the past five decades.

UNSM works closely with contractors and NDOR personnel in all phases of construction to preserve the state's rich prehistoric past without stopping or delaying construction. Early notification of pending projects allows for field surveys and test excavations prior to construction. Pre-construction meetings and on-site training inform the contractor and NDOR staff of potentially fossiliferous areas and what to look for during excavation. If fossil remains are discovered, contractors continue working but shift their operations to temporarily avoid paleontologically sensitive areas. After construction is completed, NDOR will provide equipment to re-open localities for additional study. This highly successful inter-agency partnership preserves specimens that would be destroyed thereby enhancing our scientific knowledge of the paleoflora and fauna in our state.