

2010 Guide to Fossil Events and Dealers in Tucson

Jan. 30 - Feb. 13, 2010



Association of Applied Paleontological Sciences

THE MAGNIFICENT DANA QUARRY DINOSAURS

By Henry Galiano

For all those who love fossils, making a dinosaur discovery would be the ultimate dream of a lifetime. Every summer the digging crews working the Dana Quarry live that very dream and much more. The magnificent fossils from the Dana Quarry are the most exciting new discoveries in dinosaur paleontology today.

The Dana Quarry is located at the western edge of the Bighorn Mountains near the quaint town of Ten Sleep in Wyoming. This site was discovered more than 15 years ago by the present landowner and retired geologist. But its scope and importance went unappreciated until the



summer of 2006, when the Dinosauria International, LLC team organized the proper research and documentation necessary to bring excavations up to modern paleontological standards. These recent excavations have revealed a unique Morrison Formation site, preserving an enormous multi-species death assemblage of dinosaurs.

This quarry site has produced some of the most important Jurassic dinosaur discoveries from North America. In this relatively small quarry, over 15 individual dinosaur skeletons have so far been unearthed, representing a variety of species, including predator and prey, both large and small. These virtually complete and exquisitely preserved skeletons tell a fascinating story, which has yet to be fully explored. Current speculation suggests that the Dana Quarry site may have previously been a natural trap where herbivorous species, perished together in a shrinking water hole, possibly during a catastrophic drought. The weak and dying may have gotten caught in the mud long enough to attract the attention of predators, which in turn were trapped while feeding on "easy pickings". The feeding intensity is well supported by the numerous tooth sheds recovered. The teeth belong primarily to Allosaurus and Torvosaurus,

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while tooth sheds belonging to *Ornitholestes*, *Elaphrosaurus* and *Ceratosaurus* are not rare. The carnage preserved here is reminiscent of the conditions that existed in the Tar Pits of Rancho La Brea, where Ice Age mammals were drawn to their death by a rare predator & prey chain reaction event. So far, the Ten Sleep time capsule has produced the following dinosaurs: *Apatosaurus*, *Diplodocus*, *Brachiosaurus*, *Camarasaurus*, *Allosaurus*, *Ornitholestes*, *Coelurus*, *Elaphrosaurus*, *Torvosaurus*, *Ceratosaurus*, *Othnielosaurus*, *Camptosaurus*, and the rare stegosaur, *Hesperosaurus*.



Most impressive among these are the sauropods skeletons, which have been found in near completion with associated skull material. The lucky depositional circumstances that took place at the Dana site have produced an outstanding collection of these complete skeletons - they are the best ever discovered.

Nothing more symbolizes dinosaurs than the long necked sauropods, and for these creatures, the largest animals ever to walk on land, gigantism is their evolutionary claim to fame. Indeed, among the many dinosaurs exhibited in museums, none are more spectacular and fascinating. From towering necks to whipping tails, thunder

lizards, display exaggerated body proportions, which captures the imagination of the visitor in a way that is both thrilling and humbling. Despite the popularity of these giant dinosaurs, they are also some of the most poorly understood, as scientists to this day have little understanding of how they grew so large, how they moved, and how they evolved. Every new discovery, therefore, adds vital information towards understanding this fascinating group. Thus, the research potential in the new Dana specimens is enormous,



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One of the jewels in the collection is specimen nicknamed named "*Brontodiplodocus*", an associated skeleton preserving an articulated series of cervical vertebrae ending with its perfectly intact skull and lower jaws, a first for Diplodocid sauropods. Cranial material belonging to long necked dinosaurs are the rarest of finds, and complete associated skeletons are virtually nonexistent. The critical data associated with this specimen promises to change the way paleontology will view the evolution of these long necked dinosaurs.

Another noteworthy discovery lies in our *Allosaurus* and *Stegosaurus* specimens, which documents for the first time a direct association in the fossil record. Individuals belonging to these two popular dinosaurs were discovered next to each other in our quarry and have been reconstructed and mounted for exhibition as the first associated "fighting pair" of Jurassic dinosaurs. Both specimens represent new and important fossils with a unique story, which will certainly provide an exciting museum exhibit that will attract visitors for many generations to come. Our Jurassic killer ranks as one of only a handful of *Allosaurus* skeletons found with a completely articulated skull. The outstanding feature of this skull is the virtually complete set of teeth and represents the best *Allosaurus* examples known.

Interestingly, the Dana Quarry is also a botanically rich site, containing the fossilized remains of many extinct species of horsetails, ferns, cycads, and several families of conifers, beautifully preserved seeds and cones are quite common within the dinosaur deposit layers.

The Dana Quarry is situated within the lower part of the Morrison Formation. The fossil producing layers are approximately 20-30 feet above the Sundance Formation. Lower Morrison faunas are rare and existing fossils are fragmentary and not well understood. Faunal comparisons support the stratigraphic position of the quarry as older

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PRODUCTS AND DEALER LOCATIONS

International Fossil Co.
RAL, Room 117 - RPI, Room 132

J & S Fossils RAL, Room 154

Mt. Blanco Fossil Museum

Native Northwest Design
HTCC, Ballroom

Nord Fossils HTCC, Room 305

Primigenius MFC

Smilodon Resources, LLC.
RAL, Room 166

Publications

Aerolite Meteorites
HTCC, Room 230

Fossil News
HTCC, Copper Ballroom

Shark Teeth

Bone Clones Inc.
HTCC, Copper Ballroom

FossilsOnline RAL, Room 141

J & S Fossils RAL, Room 154

Lowcountry Geologic
HTCC, Room 229

Moussa Minerals & Fossils
HTCC, Room 134, Tent 10

Nature Preserved RAL, Room
201

Sahara Overland
RAL, Tent T-18, MFC Booth 4

Sharkteeth.com RAL, Room 157

Skeletal Mounts

Bone Clones Inc.
HTCC, Copper Ballroom

Canada Fossils
HTCC, Copper Ballroom,
Rooms 329 & 330

Skulls Unlimited International,
Inc

Triebold Paleontology Inc.
HTCC, Copper Ballroom

Tektites

Blaine Reed - Meteorites
RAL, Room 134

Trade Shows

Martin Zinn Expositions
QI - HTCC - RAL - MFM

Minerallentage

The Denver Coliseum Show

Trilobites

BC Lithics TEP, Tent 21

Black Cat Mountain Trilobites
HTCC, Room 224 & 225

Custom Paleo
HTCC, Copper Ballroom

EDCOPE Enterprises

Extinctions

Fossils Inc. George Ast
RAL, Room 103

George Heslop Fossils
HTCC, Copper Ballroom

Geological Enterprises, Inc.

Mineralien Zentrum Andreas
Gühr
HTCC, Room 159 & 160 - MFC

Moussa Minerals & Fossils
HTCC, Room 134, Tent 10

Nord Fossils HTCC, Room 305

PaleoSearch
HTCC, Copper Ballroom

Sahara Overland
RAL, Tent T-18, MFC Booth 4

Sahara Sea Collection, Home
of Doc Fossil - MFC

Saint Petersburg
Paleontological Laboratory
RAL, Room 122 & 124

The Bug House - MFC

Tom Witherspoon Fossils
HTCC, Copper Ballroom

Walker Fossil Works

Western Fossils

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in age. The supporting evidence lies in presence of two primitive dinosaur species of *Allosaurus* and *Hesperosaurus*. In the Dana specimen *Allosaurus* ("jimmadsoni"), is characterized by the horizontal lower boarder of the jugal, manus claws less hooked and the general slenderness of the skeleton, in comparison to the more derived *Allosaurus fragilis*. Our stegosaur, *Hesperosaurus* cf *mjosli*, is known only from Lower Morrison localities. Additional supporting evidence lies in the primitive morphology of the brain case belonging to the *Apatosaurus*, Einstein. In this specimen, the occipital condyle is proportionally smaller in comparison with other specimens attributed to Upper Morrison *Apatosaurus*. Dr. Robert T. Bakker believes that the *Apatosaurus* skeleton originally from the Dana Quarry may possibly belong to *Eobrontosaurus*. These three dinosaur species are reported only from Lower Morrison Formation sites.

What's most exciting is that we have only began to excavate the "tip of the iceberg", the fossil deposits are extensive at the Ten Sleep ranch and every field season continues to produce discoveries beyond expectations.

PRODUCTS AND DEALER LOCATIONS

Jewelry

BC Lithics TEP, Tent 21

Benthos Projects
RAL, Room 118

Canada Fossils
HTCC, Copper Ballroom
Rooms 216-217

Chris Moore Fossils
RAL, Room 144

Earthly Endeavors
HTCC, Room 134, Tent 10 --
TEP, Tent 21B

Everything Prehistoric
HTCC, Copper Ballroom

Meteorites

Aerolite Meteorites
HTCC Room 230

Blaine Reed - Meteorites
RAL, Room 134

George Heslep Fossils
HTCC, Copper Ballroom

JR International
HTCC, Room 219

La Memoire de la Terre
HTCC, Room 307

Lang's Fossils

Moussa Minerals & Fossils
HTCC, Room 134, Tent 10

Natureshop
1820 ORACLE WHOLESAL
SHOW

Sahara Overland
RAL, Tent T-18, MFC, Booth 4

The Stone Company
HTCC, Room 404

Meteorite Preparation

Black Hills Institute of
Geological Research
HTCC, Copper Ballroom

Lang's Fossils

Paleobond
see BHIGR

Minerals

American Educational
Products/ScottResources

Black Hills Institute of
Geological Research
HTCC, Copper Ballroom

Crystal World and Prehistoric
Journeys
HTCC, Room 136

Leo Atkinson
HTCC, Lobby

Moussa Minerals & Fossils
HTCC, Room 134, Tent 10

Natureshop
1820 ORACLE WHOLESAL
SHOW

Paleofacts
HTCC, Room 140

Tucson Mineral and Gem
World

Moroccan Fossils

Claude Ben David
HTCC, Mac Arthur Room

Moussa Minerals & Fossils
HTCC, Room 134, Tent 10

Sahara Overland
RAL, Tent T-18, MFC, Booth 4

Sahara Sea Collection, Home
of Doc Fossil MFC

Museum

Black Hills Museum of Natural
History
HTCC, Copper Ballroom

Bone Clones Inc.
HTCC, Copper Ballroom

Mt. Blanco Fossil Museum

Langheinrich Fossil Preserve,
Inc.
WLR, Building 23 Room 243

Natural History Appraisals
Paleofacts HTCC, Room 140

Rocky Mountain Dinosaur
Resource Center
HTCC, Copper Ballroom

Museum Exhibits & Displays

Black Hills Institute of
Geological Research
HTCC, Copper Ballroom

Bone Clones Inc.
HTCC, Copper Ballroom

Canada Fossils
HTCC, Copper Ballroom,
Rooms 216-217

Dinosauria International LLC.
HTCC, Room 404-406

Extinctions

Geoscience Enterprises
EI, Room 109

PaleoSearch
HTCC, Ballroom

Rocky Mountain Dinosaur
Resource Center
HTCC, Copper Ballroom

Sahara Sea Collection, Home
of Doc Fossil
MFC

The Stone Company
HTCC, Room 404

Triebold Paleontology Inc.
HTCC, Copper Ballroom

Western Paleontological
Laboratories Inc.

Museum Shop

Canada Fossils
HTCC, Copper Ballroom, Rooms
216-217

Rocky Mountain Dinosaur
Resource Center
HTCC, Copper Ballroom

Prehistoric Paradise
HTCC, Copper Ballroom

Natural History/Appraisals

Maxilla & Mandible Ltd
HTCC, Room 404-406

Natural History Appraisals

The Stone Company
HTCC, Room 404

Opal

BC Lithics TEP, Tent 21

Harley Quinn's Opal
Emporium
HTCC, Room 423

Osteological Specimens

BC Lithics TEP, Tent 21

Bone Clones Inc.
HTCC, Copper Ballroom

Petrified Wood

Applegate Lapidary
RAL, Room 136

Chris Moore Fossils
RAL, Room 144

Murph's HTCC, Room 303

Nord Fossils HTCC, Room 305

Petrified-Wood.Com
MFM, Space 05

Rapp with Wood
HTCC, Room 337

RJB Rock Shop Japheth Boyce
HTCC, Room 416

Russell-Zuhl Inc

MFC

Southern Arizona Fossils

Pleistocene Fossils

FossilsOnline RAL, Room 141

George Heslep Fossils
HTCC, Copper Ballroom