



# CASTING LIGHT ON PREHISTORIC LIFE

Museum exhibits of prehistoric animals, and especially those of dinosaurs, may be the most important models in helping us develop an understanding of the immensity of geologic time. Evidence that these near mythical and gigantic creatures truly existed captivates young and old. Perhaps that is why dinosaur exhibits rank as the star attractions in museums around the globe.

But how do incredible examples of extinct dinosaurs and mammals find their way to museums for our intellectual consumption? The answer may be in our own backyard.

The journey begins in Trenton. This is home to Research Casting International's 48,000 square foot state-of-the-art facility.

*by* CHRISTINE RENAUD

# Research Casting International's dinosaur bodies and bones can be found around the world – from the Museum für Naturkunde in Berlin to Universal Studios in Hollywood.



## A WAREHOUSE OF WONDERS

From the exterior, Research Casting International (RCI) is an unassuming, commonplace warehouse facility. Inside, it houses the extraordinary. Through a variety of unique services that blend technology and artistry, RCI makes it possible for museum goers around the world to view exact replicas of the planet's most rare paleontological discoveries covering the evolution of vertebrate life from the Triassic era to the present.

Through specimen restoration, specimen mounting, exhibit fabrication and relocation, the company helps transport the past to the present.

Peter May founded Research Casting International in 1987. Still at the helm of the company as presi-

dent, May and his associates have been commissioned for work by museums around the globe. Exhibits in the American Museum of Natural History in New York City, the Geological Museum of China, the British Museum of Natural History, the Musée National D'histoire Naturelle in Paris, the Auckland Museum in New Zealand, and the Culture and Museum Centre in Malawi, all feature RCI's work.

Closer to home, you will find their extraordinary creations at the Royal Ontario Museum in Toronto and the Canadian Museum of Nature in Ottawa. RCI's reconstructions can also be found at Universal Studios in Hollywood and Walt Disney Imagineering in California as well as in numerous universities.

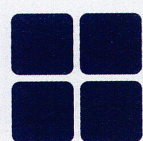
## A LAND BEFORE TIME

On my visit to RCI, I was awestruck by the five massive prehistoric animals in various stages of assembly I encountered as I walked through the construction area.



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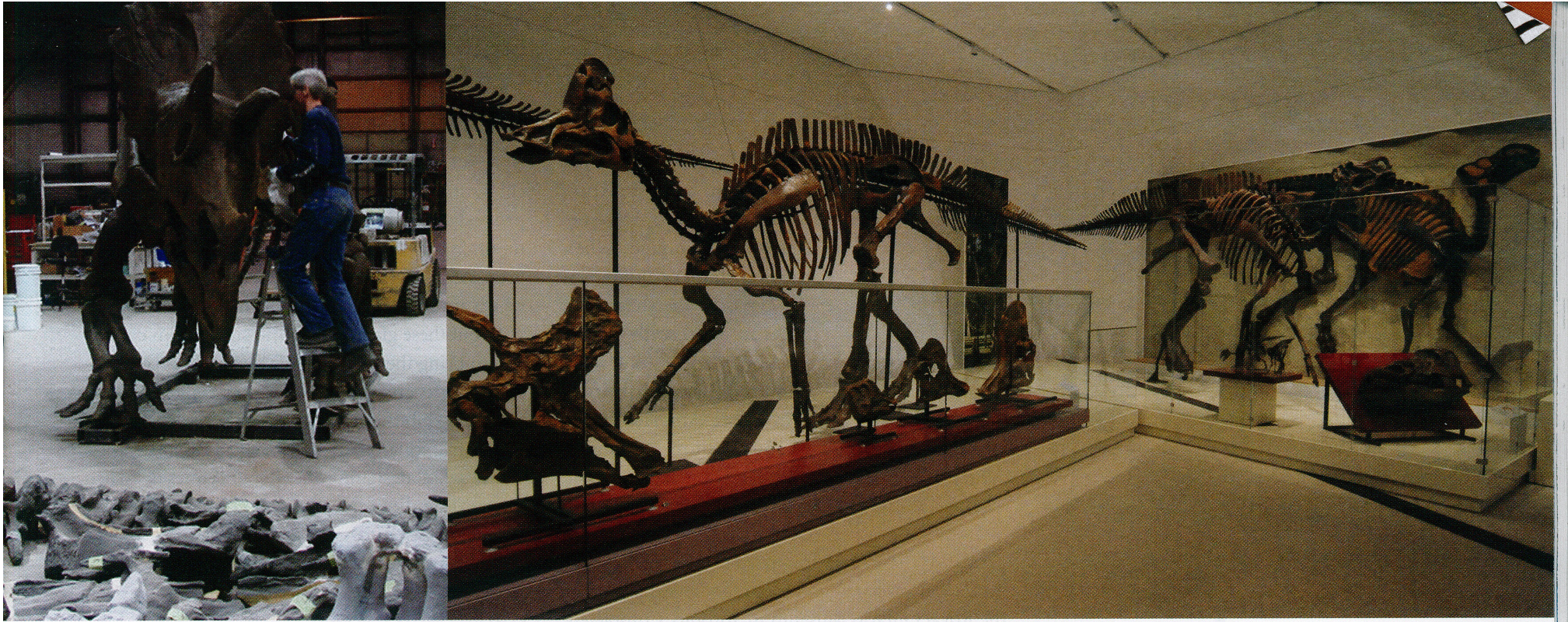
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Six feet up on a ladder, a man stood deeply intent as he welded what looked like a portion of a jawbone onto a rather unusual looking facial structure. On a table nearby, lined up like an immense xylophone, was a disassembled ribcage. Further on, the grey metal armature of a skeletal torso appeared not unlike a work of modern art in a gallery.

I asked Garth Dallman, Project Manager at RCI and my tour guide, about the piece. Armatures, I learned, are an integral part of many of the restorations. Bones and fossils will be mounted onto these.

"I made that armature, in fact," said Dallman, revealing that in addition to being a Project Manager, he is also a blacksmith.

Sculptors, carpenters, painters, blacksmiths and technicians combine their strengths and talents to create these giant wonders inside the cavernous RCI facility. From the corner of my eye, I spy intriguing shapes and objects like life-size metal mastodons lined up and leaned against a wall. It is evocative of a backstage Hollywood set for a *Land Before Time* movie.

In the restoration area Amelia May, daughter of founder Peter May, works with fossil and bone specimens. Handling these takes particular care and the restoration and consolidating of precious artifacts is a unique skill.

May's work area is surrounded with cabinets clearly identifying the hundreds of specimens housed within and features stations reminiscent of an archaeological dig, complete with sand. Soft brushes and various small exploratory tools help complete the illusion.

#### MOULDING THE PAST

In the foundry, bronze and aluminum moulding and casting can be produced on-site. Complementing the foundry is a metal shop for custom fabrication. Ironwork, in addition to creating armatures and mounting fossil skeletons, can also be used to create custom exhibit fixtures.

from left to right: Research Casting was awarded the contract to completely dismantle and reassemble the paleontology displays at the Amherst College Museum of Natural History; Brachiosaurus on display in the grand atrium of the Museum für Naturkunde, Berlin; Welding in the warehouse at RCI; Barosaurus display at the Royal Ontario Museum

The fascinating process of recreating prehistoric animals according to Dallman, usually begins when specimens are shipped to Research Casting.

"Virtually no animals are found as whole skeletons," explained Dallman, "so in addition to mounting specimens, we reconstruct portions ourselves."

Cutting edge 3D digital scanning and printing have enhanced traditional restoration techniques. Printed replicas in 3D can be used in place of actual fossils and are highly accurate. The scanning is non-invasive

process allows curators and paleontologists to digitally retrieve 3D scanned files.

When we reach the casting area, the supervisor Mike Thom explains the process currently underway. "These are rubber moulds made with liquid resin," he says pointing to a number of what remind me of very large dental forms. "The soft rubber creates the reverse so that we can cast exact replicas of the various parts."

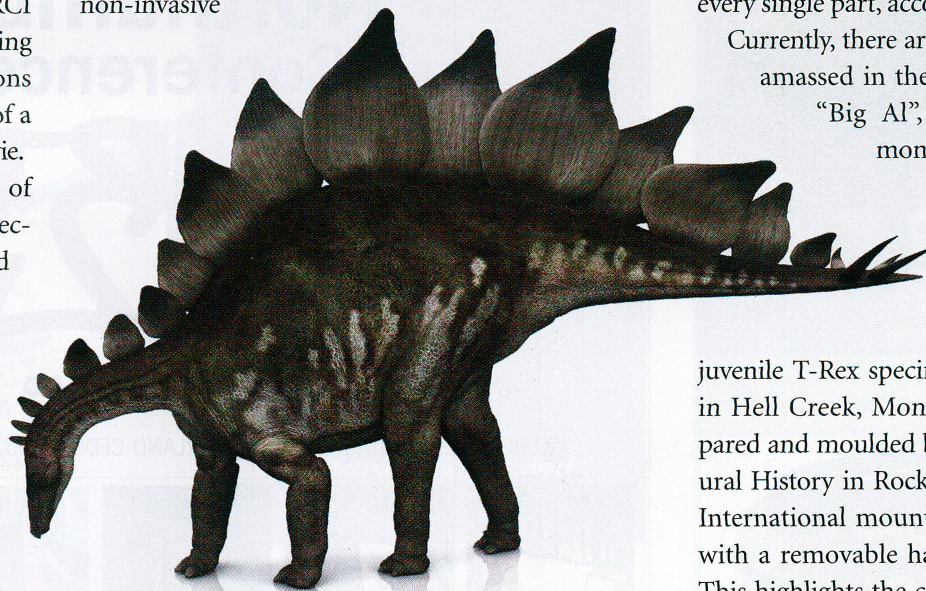
The whole idea is to have the specific moulds for every single part, according to Mike.

Currently, there are approximately 10,000 moulds amassed in the crates – crates stamped with "Big Al", "Stego", and various other monikers, including "Jane", in bold black lettering.

"Who's Jane?" I ask.

Jane, Garth tells me, is one of the best preserved and most complete

juvenile T-Rex specimens in the world. Discovered in Hell Creek, Montana, Jane was collected, prepared and moulded by the Burpee Museum of Natural History in Rockford, Illinois. Research Casting International mounted the original fossil skeleton with a removable hand-forged external armature. This highlights the company's paleontological services, including dismantling, crating and moving historic specimens.

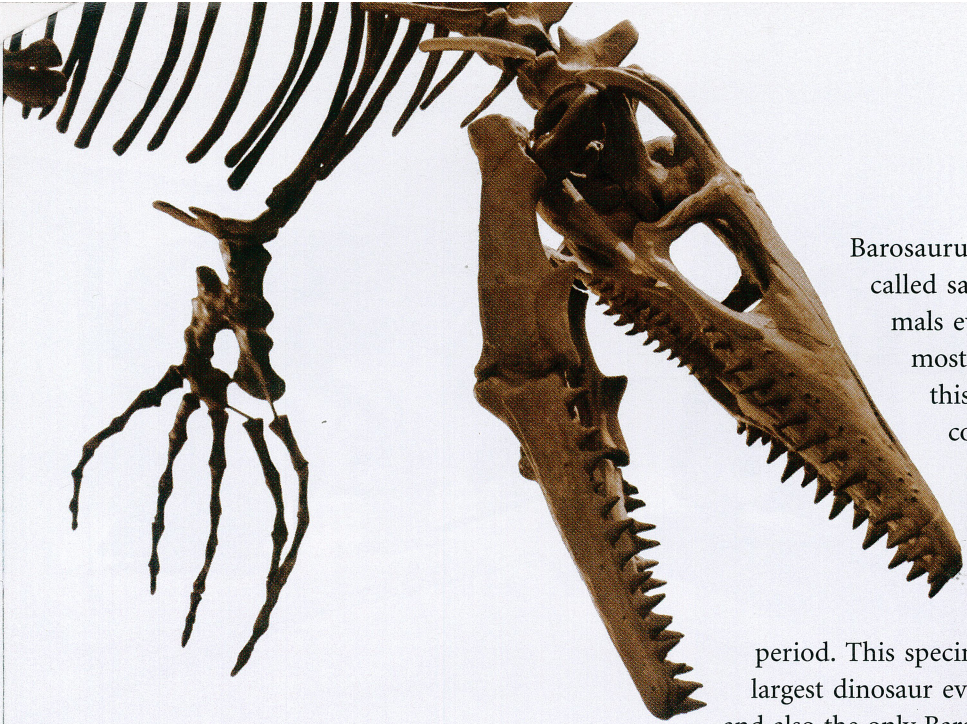


and lessens stress and manipulation of the actual specimens. The digital technology also allows enlargement, reduction and what is termed retro-deformation, which provides correct geological distortion. Mirror images can be created to match opposing pieces. In addition to technology providing the most accurate reconstructions possible, the

#### PURVEYORS OF PALEONTOLOGY

One of the many ambitious projects that RCI has undertaken, and possibly the most renowned, is the restoration and mounting of the a Barosaurus, the largest dinosaur ever displayed in Canada. The

photographs courtesy of Christine Renaud and Research Casting International



Barosaurus is part of a classification called sauropods – the largest animals ever to walk on land. When most people think of dinosaurs, this is typically the shape that comes to mind, with a massive body and a long neck and tail. Barosaurus lived in North America about 150 million years ago during the late Jurassic period. This specimen of the Barosaurus, the largest dinosaur ever displayed in the country and also the only Barosaurus ever built with actual fossils was prepared and mounted for exhibition at the Royal Ontario Museum in Toronto. Completely assembled, the skeleton is approximately 90 feet (27 metres) long. Imagine two school buses end-to-end and then some!

The Museum für Naturkunde in Berlin, commissioned RCI to restore and remount its famous Brachiosaurus exhibit. The project loomed as large as the dinosaur – it required conserving and transporting the original fossils and then moulding and mounting cast and original bone, as well as sculpting missing bones. The impressive reconstruction is now on display in the museum's grand atrium.

The priceless and intact original head of the Bra-

chiosaurus was replicated using RCI's 3D scanning process and the exact replica was then cast for mounting. RCI has developed a number of unique processes and techniques over the years, many of which are exclusively owned by the company.

To put these giant prehistoric creatures in context and to bring them to life, many museums commission RCI to create complementary environments for their exhibits.

A 10,000 square foot layout area at RCI's facility is dedicated to designing these environments, which can include dioramas, timber framing and sculptures of rocks and trees, and even elaborate backgrounds such as swamps or forests.

#### PLAYING WITH THE PAST

Priding itself on innovative ideas, RCI has decided to use its vast collection of knowledge and experience in a new enterprise.

Matt Fair, the company's Production Manager is spearheading this new initiative, aptly called Exploration Playgrounds.

"We'll be creating unique themed playground equipment that lets children play the role of a paleontologist, archaeologist or treasure hunter," explained Fairs.

The equipment is intended to stimulate interest and educate through role playing while encourag-



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The Dinosaur Digs, as they are called, are built in a concrete matrix to form a dig site. Parts of the skeleton stick out from the sand and encourage children to dig and explore.

Exploration Playgrounds has already attracted

much attention, proving that while prehistoric animals may be extinct, our fascination with them lives on, whether they are roaming in the imaginations of children and playgrounds, or recreated by skilled artisans for exhibit in the world's most sophisticated museums. 🌿

Due to the confidential nature of their work, Research Casting does not offer tours. You can, however, visit them online at [www.rescast.com](http://www.rescast.com) or, better yet, view one of their exhibits in person on your next visit to the ROM.

Amelia May's painstaking efforts at RCI are part of the meticulous process that eventually results in the giant specimens that thrill museum-goers around the world.

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