

TO: Iowa Newspaper Association Member Editors
FROM: Iowa Department of Economic Development
DATE: October 16, 2009
RE: "Iowa Innovators"

The "Iowa Innovators" series is a joint project of the Iowa Newspaper Association and the Iowa Department of Economic Development (IDED). The series is an outgrowth of an idea from member INA publishers. "Iowa Innovators" articles describe initiatives that Iowa communities have used to improve their ability to attract business and industry and demonstrate community innovation. The articles also describe Iowa companies on the leading edge of technology, business expansion, workforce development and recycling.

IDED and INA hope these article ideas will be published locally and spark community and business initiatives statewide. If you have community or business success stories to share, contact IDED, 200 East Grand Ave., Des Moines, IA 50309, call 800.245.IOWA (4692) or e-mail business@iowalifechanging.com.

The following is a list of companies and communities featured in this round of "Iowa Innovators" articles:

1. In the **northeast Iowa community of Oelwein**, three recently installed industrial presses are using 4,000 tons of compression force — enough force needed to crush 2,000 Chevy Suburbans sitting one atop another — to create molded parts at **Ashley Industrial Molding's** new production facility, a 142,000-square-foot building that underwent a \$5 million makeover. Ashley selected Iowa as the site for its first expansion outside of Indiana to be closer to agricultural-equipment producers such as Deere & Co., AGCO Corp. and Case New Holland. Scott Pflughoeft, Ashley vice president of operations says, "We mold large fiberglass composite parts for agricultural, construction, forestry, military and heavy-truck markets."
2. In **Iowa City**, two University of Iowa-trained scientists with Ph.D.s in Engineering have started a technology company and developed a virtual reality software tool that allows the virtual dissection and exploration of the human anatomy. **Cyber-Anatomy Inc.** and its interactive anatomy software was created for medical education in countries where, due to religious beliefs and customs, cadavers are not readily available, explains Amos Patrick, Cyber-Anatomy director of engineering. That's where Cyber-Anatomy is so important. "Our program provides a realistic and immersive environment for virtual dissection and exploration of both the male and female anatomy," he says.
3. Pioneering research by **Catilin, Inc., an Ames, Iowa-based technology company** has the potential to revolutionize biofuel production. "This technology will change how biodiesel is produced," says Victor Lin, Iowa State University professor of chemistry. Lin is the inventor of a nanosphere-based catalyst that combines vegetable oils and animal fats with methanol to produce the cleaner-burning fuel. Biodiesel is a renewable fuel that can be produced from animal fats or vegetable oil and displaces petroleum-based diesel fuel. Lin says that when produced in a sustainable manner, biodiesel reduces the formation of climate-changing greenhouse gases. Catilin conducts research on the ISU campus at the Carver Co-Laboratory while also running a pilot plant at **the Biomass Energy Conversion Center in Nevada**.

Start the Presses!

Imagine the force needed to crush 2,000 Chevy Suburbans sitting one atop another. In the Iowa community of Oelwein, three recently installed industrial presses are using 4,000 tons of compression force to create molded parts at Ashley Industrial Molding's new production facility.

The mammoth 600-ton machines — approximately the weight of 50 Boeing 787 jetliners — arrived in Oelwein this fall after making a trek from China to New Orleans and onto barges up the Mississippi River before a caravan of 41 semis delivered them to their final destination, a 142,000-square-foot building that underwent a \$5 million makeover.

And while Ashley selected Iowa as the site for its first expansion outside of Indiana to be closer to agricultural-equipment producers such as Deere & Co., Case New Holland and AGCO Corp., the destination of these components can be a little farther south: Brazil.

Scott Pflughoeft, Ashley vice president of operations says, "We mold large fiberglass composite parts for agricultural, construction, forestry, military and heavy-truck markets. Customers are based in the U.S., but our products are also exported not only to South America but to customers in Africa, Asia and Europe."

Ashley Industrial Molding was born in 2001, when its current management team bought the nonautomotive composites business from Meridian Automotive Systems Inc.

Its expansion into Iowa — the heart of the agricultural equipment industry — says Pflughoeft, makes sense on many levels.

"The trend for Original Equipment Manufacturers is to fix as many of their costs as possible and to receive components as needed," he says.

"Our new Oelwein facility puts us right in the middle of where our customers have their assembly plants. Our new location minimizes the distance and freight cost to ship product to many of our customers."

According to Pflughoeft, Ashley started looking for an expansion site in the spring of 2008, primarily in Indiana, Iowa and Wisconsin.

"State and local officials have been excellent to work with, and the expansion project has gone very smoothly," he says.

Ashley currently has 80 employees

working at the Oelwein plant and Pflughoeft says 125 employees will work there when it's at full capacity.

"We are very pleased with the availability of workers and with the skill sets the workforce possesses," he says. "We are adding new business and see output growing at a steady pace over the next few years."

In return for the pledge to create 125 new jobs at or above \$16 an hour, the \$15 million expansion project was awarded a series of tax benefits from the Iowa Department of Economic Development-administered Iowa Enterprise Zone program. Ashley also was awarded \$625,000 from IDED's Community Economic Betterment Account (CEBA).

To accommodate the massive compression molding machines, excavating was done and an 80-ton crane was installed inside the plant. Concrete

pits were created where cement piers were poured to create the foundation for the presses.

"The roof of the original building was removed so a modular building could provide a new cover for the area," says

Pflughoeft.

In the state-of-the-art facility, components such as tractor hoods, construction equipment panels, components for military Humvees, and other parts are fabricated and then move through the washing, primer and paint areas prior to shipment.

Pflughoeft says privately held Ashley is excited about its new Iowa location. "The facility is served by a rail line and designed in a way that allows us to expand if necessary."

He is similarly optimistic about finding the major customers and business needed to keep the Oelwein facility producing a high level of component parts.

"We build our company based on relationships," says Pflughoeft. "Our objective is always to build beneficial relationships with our customers, our suppliers, our employees and our communities, and let the revenue end of the business take care of itself based on that," he concludes.

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An Immersive Lesson in Anatomy

The human body is an incredible machine, and doctors, nurses, and other health-care professionals spend years studying its complex structure.

In Iowa City, two University of Iowa-trained scientists with Ph.D.s in Engineering have started a technology company and developed a virtual reality software tool that allows the virtual dissection and exploration of the human anatomy.

Cyber-Anatomy Inc. and its interactive anatomy software was created for medical education in countries where, due to religious beliefs and customs, cadavers are not readily available, explains Amos Patrick, Cyber-Anatomy director of engineering.

"In the Middle East, for example, the Jewish and Muslim tradition is to bury the deceased within 24 hours if possible," says Patrick. "Because of these religious beliefs and customs, cadavers aren't as available for medical students to study."

That's where Cyber-Anatomy is so important explains Patrick. "Our program provides a realistic and immersive environment for virtual dissection and exploration of both the male and female anatomy.

"Teachers, doctors and other health professionals using our products are able to advance students' core curriculum and understanding of the human body."

Cyber-Anatomy's proprietary, real-time simulation environment makes a full set of interactive functions available.

Rotation, dissecting, zooming in or out, peeling away muscle layers, focusing on specific organs, are just a few examples of the flexibility allowed the student.

The start-up technology company — which markets not only its software, but immersion virtual reality hardware systems as well — was awarded \$70,000 from the Iowa Department of Economic Development's Iowa Demonstration Fund to assist in marketing its technology throughout the globe.

With recent installations of its virtual reality technology systems at the University of Cairo and the University of Calgary in Qatar, the Demonstration award has already made a huge impact for the company, says Patrick.

"We've set up a global distribution network and have also recently signed

a distribution agreement with Elsevier, a leading U.S. publisher of health science books, journals and software programs."

Cyber-Anatomy has all of the anatomical detail needed to make it a powerful reference for students learning anatomy. "We've harnessed the strengths of advanced gaming technology, engineering Computer Aided Design modeling, and medical 3D reconstruction to create easy-to-use tools for exploring anatomy at all levels," says Patrick.

"The 3D presentation and mobility of our programs create an open, freely-moving, virtual dissection experience. We believe student retention is magnified by providing an accurate sense of the complex relationships between anatomical structures."

Patrick believes Cyber-Anatomy has the potential to significantly impact student learning of human anatomy in a significant and positive way.

"Digital technologies are transforming every other segment of our society," he says. "Today's students are already technology savvy, using immersive and virtual reality methods to assist their learning is the future of education."

The company not only produces human anatomy software, but has a basic science program and creates custom solutions for its clients.

Cyber-Anatomy is not the only virtual reality technology company in Iowa making a global impact in the health and medical science field.

Two hours west, Ames-based BodyViz is making similar inroads to assist doctors in treating patients.

BodyViz is also a start-up virtual reality company that makes imaging software which takes a patient's MRI or CT medical scans and creates a three-dimensional image that doctors and other medical personnel can use to accurately view the inside of the patient without surgery.

The images can then be used to help diagnose problems, as well as to give surgeons a virtual road map before they operate on a patient.

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A Solid Catalyst

Pioneering research by Catilin, Inc., an Ames, Iowa-based technology company has the potential to revolutionize biofuel production.

"This technology will change how biodiesel is produced," says Victor Lin, an Iowa State University professor of chemistry, and the inventor of a nanosphere-based catalyst that combines vegetable oils and animal fats with methanol to produce biodiesel. "We are making biodiesel production much more economical and more environmentally friendly."

Biodiesel is a renewable fuel that can be produced from animal fats or vegetable oil and displaces petroleum-based diesel fuel. Lin says that when produced in a sustainable manner, biodiesel reduces the formation of climate-changing greenhouse gases.

"Biodiesel also has the added benefit of increasing engine lubricity and significantly reducing the formation of particulate matter, a known respiratory irritant that is especially harmful to children and young adults," explains Lin.

Catilin is partly owned by Iowa State University and two venture-capital firms. It conducts research on the ISU campus at the Carver Co-Laboratory while also running a pilot plant at the Biomass Energy Conversion Center in Nevada.

The company's patent-pending technology for the biodiesel industry greatly reduces the cost of producing a gallon of biodiesel while creating a superior quality biodiesel and glycerin by-product.

"The technology is non-toxic, can be easily utilized within existing production facilities, can be reused multiple times and works with virtually every biodiesel feedstock source," says Lin.

In addition, several production steps in the traditional biodiesel production process can be eliminated with Catilin's revolutionary technology, making the process both economically and environmentally more desirable, while producing a purer biodiesel and a purer glycerol side-product.

And while Catilin's technology is making waves throughout the renewable energy community, the process could also make Iowa's existing 15 biodiesel refineries more efficient and profitable. Each year biodiesel plants in Iowa transform 175 million bushels of soybeans into 323 million gallons

of biodiesel.

Catilin was awarded \$150,000 from the Iowa Demonstration Fund, administered by the Iowa Department of Economic Development, to assist the company in upgrading its pilot plant.

"The award will allow us to convert our research plant to a continuous flow refinery which is the final step in commercializing our technology," says Lin.

Everywhere one looks, it seems Iowa companies and Iowa ingenuity are helping make the state a world leader in using renewable sources to produce green energy.

Along with Catilin, recently constructed Plymouth Energy is another example of just that. The \$80 million biorefinery near Merrill in northwest Iowa is among the newest ethanol plants in the U.S. and now employs 35 people.

According to Dave Hoffman, Plymouth Energy CEO, the facility is running at 100 percent capacity and will use 20 million bushels of corn to produce 50 million gallons of ethanol per year.

Output from that plant and others across the state has made Iowa the nation's leading producer of biofuels.

The latest statistics from the Iowa Renewable Fuels Association show the Hawkeye state has 40 ethanol refineries that annually convert one billion bushels of corn to 3.3 billion gallons of clean-burning ethanol.

But it's not just biofuels, Iowa is now home to 250 companies and suppliers to the wind energy industry. This includes major international companies such as Siemens Energy; Clipper Windpower, Inc.; Acciona Energy North America; Trinity Structural Towers; NextEra Energy Resources and TPI Composites.

These turbine, blade and tower manufacturing operations have chosen to locate in Iowa for good reason — abundant wind farms and abundant wind supply.

Cleaner energy from renewable sources creating green jobs. That's one catalyst that will enhance Iowa's economy in the 21st century.

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