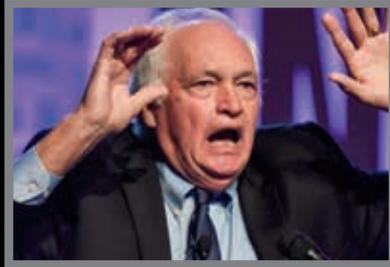


THE ROBOTS ARE COMING





Futurist Lowell Catlett offers insight on an ever-changing future

— from robots to 3-D printing — and what that means
for agriculture and rural communities.

by Kindra Gordon, field editor;
photos by Eric Mull

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“The past is a foreign country; they do things differently there.” So goes the well-known opening line of British author L.P. Hartly’s book, *The Go-Between*. Lowell Catlett likes to use that quote to describe the future.

“It will be different there,” he emphasized.

The fast rate of change moving us toward that future is already occurring.

“Every day the world creates 2.5 quintillion bytes of information,” Catlett reports. For reference, 1 quintillion is a 1 followed by 18 zeros.

Catlett, a futurist and retired regents professor in agricultural economics and agricultural business and extension economics at New Mexico State University, entertained Angus enthusiasts as the opening speaker of the International Genomics Symposium, which was a precursor to the 2017 Angus Convention Nov. 4-6 in Fort Worth, Texas.

His comments addressed an array of futuristic possibilities — from autonomous cars to renewable energy sources and fuel cells, to robots, telemedicine and 3-D printing.

He couched his remarks with a disclaimer noting, “Nobody can see around the corner.”

The past century

For perspective on how much the world is changing, Catlett advised first looking to the past. He noted that in 200 years, from 1704 to 1904,



“This (cellphone) is thirty-two times more powerful than the computer that took men to the moon.”

some changes occurred, but not a lot. Whereas, the past 100-plus years have witnessed what Catlett called unfathomable change — development of automobiles and tractors, splitting an atom, putting a man on the moon.

For context, Catlett pulled out his Galaxy Samsung phone and showed it to the audience.

“This is thirty-two times more powerful than the computer that took men to the moon,” he said, noting that was in 1969. “Computer capacity came

out of nowhere and is now infinite.”

“What do you do with a free, infinite computer?” he asked. The answer is being seen in the development of robotics. Specifically, he shared that some 250,000 commercial robots were added to manufacturing and service jobs around the world last year, with Japan leading the world in the use of robotics. More than a million robots have been employed on the planet in the past five years.

Robots on the job

General Motors was among the first to use robots for car manufacturing in the early 1960s. Today, 50% of all cars are manufactured by robots. Along with that, computer technology and robotics are being pursued for self-driving (or autonomous) cars. Ford and GM say they will be available by 2020.

The implications of this change are immense, said Catlett. As an example, he suggested 1.8 million truck drivers may no longer be needed because they will be replaced by autonomous vehicles. A German delivery fleet is already looking at using autonomous



“As leaders, hook yourself to the grid,” Catlett encouraged.

“Build [broadband] in your communities.

It’s a way we keep our way of life.”

delivery vehicles in 2018.

To this, Catlett expressed to the audience, “It’s coming fast folks.”

He went on to share that one auto CEO recently shared with him that eventually automobile companies and other service providers like Uber may likely own most of the cars, and people will simply utilize the service they provide.



flip burgers and fry French fries. He introduced the audience to “Baxter,” a human-like droid robot that has a hand so sensitive it can thread a needle with one hand. That sensitivity can be used to determine between a ripe or unripe fruit. This begs the question, could a robotic arm be developed to administer vaccine shots to cattle or even artificially inseminate them?



This appears to match with another trending statistic: 14% of the millennial generation haven’t applied for a driver’s license. Catlett attributed this to the fact they don’t want to own a car, have insurance costs, or pay taxes and parking fees. They simply want transportation as a service.

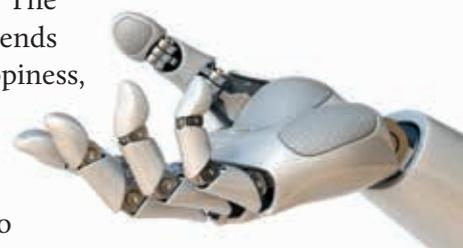
As a result, real estate will be gearing up, Catlett predicted. “There are a lot of parking garages that will no longer be needed.”

Ag and other robotics

In agriculture, the dairy industry has been quickest to find application of robots with robotic milking machines. He reported that the second fastest growth for ag robots is in handling and movement of cows. Of both applications, Catlett said, “The animals love them.”

Robots are also coming to the food industry. Catlett reported that robots are being used to

Commercial robots are finding roles as bank clerks and in health care. The robot “Pepper” in Japan tends to clients and knows happiness, anger and surprise, according to Catlett. He added that surveys indicated people prefer to have Pepper help them because the



robot is more gentle in moving them into a bed, wheelchair or bathroom.

In total, Catlett said, “Robots will be taking over jobs handling people and handling animals. Animals like them, and people do, too. Get ready for this revolution because it’s coming and will change our world.” **AJ**

Editor’s Note: Kindra Gordon is a cattlegirl and freelance writer from Whitewood, S.D. See additional coverage of the Angus Convention online at www.angus.org/Media/News/AngusConvention.aspx.

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What else is coming?

If robotic concepts aren't enough to get your mind spinning, Catlett forecast that broadband Internet (often dubbed the "smart grid") combined with the enhancements in computers and robotics will be essential to preserving quality of life in rural America. It's been dubbed the "Direct-to-Consumer Movement" and is already prevalent with online retail shopping — and even meal-delivery services.

He gives the example of having a hospital bed in your home. With a direct connection to telemedicine, Catlett said, "The specialists come to you."

Catlett suggested this same concept will fuel opportunities for agriculture to connect with consumers.

Additionally, Catlett said he anticipates mega-changes being initiated with the increasing efficiency, economics

and availability of 3-D printing. He cites a Chinese company that has printed in almost entirety the parts for a real, five-story apartment building (see <http://cnet.co/2DvtIWp> for details).

"This [3-D printing] changes the scope of manufacturing and moves it back here," Catlett observed, "and that changes the world."

Regarding livestock, Catlett suggested future opportunities may be in "printing" vaccines.

"Every cow is a little different," he explained. "So a producer could print what their health or nutritional needs are on site."

He concluded, "There are fabulous, fabulous opportunities ahead." 



Author's Note: To read more about Catlett's comments on renewable energy and fuel cells, visit <http://bit.ly/2DA6qCL>.

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