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Science blog

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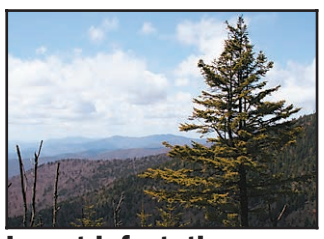
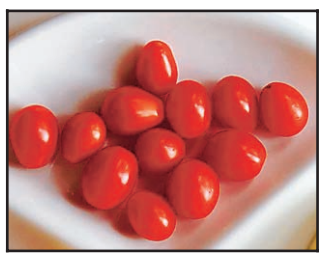
SCIENCE BRIEFS



Insect infestation pours CO_2 into air

Trees have been fighting climate change for ages, using photosynthesis to remove carbon dioxide from the atmosphere and sequestering it for the long term in their tissues. But natural events can upset a forest's carbon balance. Big fires, for example, spew plenty of CO_2 into the atmosphere, and the dead trees that remain decompose by microbial action, releasing more of the gas. Widespread insect infestations also are harmful, but rarely have they been considered when determining a forest's carbon balance. Werner A. Kurz of Natural Resources Canada and colleagues say in *Nature* that the impact of an infestation of mountain pine beetles on pine forests in British Columbia is startling. The forests, they say, are now a large carbon source and will remain so at least until 2020, long after the infestation peaks. Global climate change, Kurz said, is partly responsible for the pine beetle blight, at more than 32 million acres and counting. Winters no longer get cold enough to kill off the beetle, and warmer summers allow greater reproductive success.



Seawater infuses taste, health into tomatoes

Italian researchers report that the nutritional content of cherry tomatoes improves when the plants are irrigated with diluted seawater. Cristina Sgherri and colleagues at the University of Pisa grew cherry tomatoes with normal irrigation water and with water diluted with 12 percent seawater. They found that the seawater tomatoes were about 60 percent smaller by weight, on average, than those grown with regular water. But the seawater tomatoes were tastier, with higher acidity and a higher concentration of sugars. Where the seawater tomatoes really stood out was in concentrations of antioxidants, including vitamins C and E and chlorogenic acid. The findings were reported in *The Journal of Agricultural Chemistry*.

Many mutt tigers might actually be purebreds

There are about 3,000 tigers remaining in the wild, down from about 100,000 a century ago. In zoos, breeding facilities, circuses and even private homes, there are 15,000 to 20,000 tigers. Only about 1,000 are in breeding programs designed to preserve genetic diversity among Bengal, Sumatran and other subspecies, and the rest of the captive tigers are considered "generic" — their genetic makeup is either unknown or they are considered hybrids. But in *Current Biology,* Shu-Jin Luo and Stephen J. O'Brien of the Laboratory of Genomic Diversity at the National Cancer Institute report that perhaps 20 percent of these captive tigers are purebred and retain genetic variations not found in the wild. Genetic analyses of DNA samples from 105 captive tigers of uncertain pedigree were compared with an earlier analysis of 134 tigers of known genetic distinctiveness. They found that 49 of the captive tigers, about 47 percent, could be categorized as one of five subspecies. Because some were from breeding programs, the researchers suggest that the percentage of purebreds in the full captive population is probably lower. Still, that represents a new pool of tigers potentially available for breeding efforts.

— From wire reports

HOW TO REACH US

ASSISTANT CITY EDITOR
Mark Somerson.....614-461-8508
msomerson@dispatch.com
Fax.....614-461-7580

SHARI LEWIS | DISPATCH PHOTOS

Tara Brogan asked Giovani, owner of High Street Tattoo, to ink a strip of bacon on her calf.

Ink-stained

The art (and science) of tattooing goes back thousands of years

By Aaron Beck
THE COLUMBUS DISPATCH

No one really knows why man began to tattoo.

But Tara Brogan knows why she decided to get her latest — a strip of bacon — inked into her left calf.

"I like bacon," said Brogan, prone on a table in High Street Tattoo as artist Giovani (who goes by one name) outlined the breakfast meat in black with a tattoo machine, its disposable needles vibrating into her skin as many as 3,000 times a minute.

A 2006 study reported in the *Journal of the American Academy of Dermatology* concluded that 24 percent of Americans between ages 18 and 50 are tattooed. Thirty-six percent of 18- to 29-year-olds are tattooed.

During the Hell City Tattoo festival Friday, Saturday and Sunday in the Hyatt Regency Columbus, opportunities abound to ask the tattooed about the stories behind their ink.

Blood and bone

No matter the image or the inspiration behind it, the basic proc-

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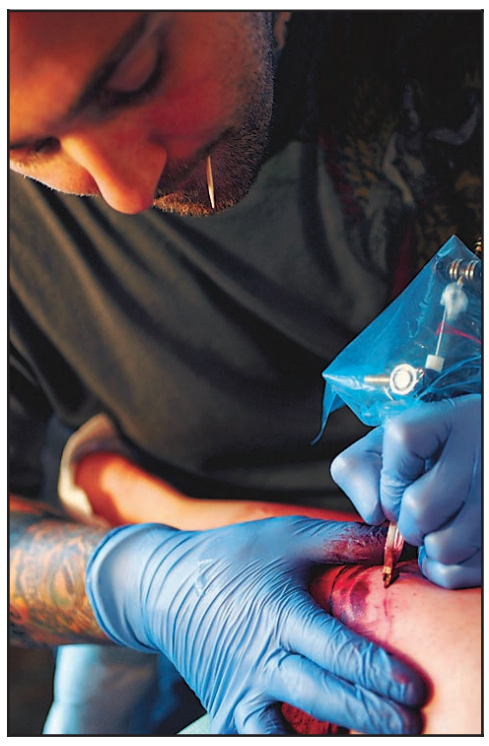


Giovani works with a shader on Brogan's tattoo. Shading needles are thicker than outlining needles.

How a tattoo is layered

1 The design is drawn freehand with a surgical marker or is transferred to the skin with an inked stencil.

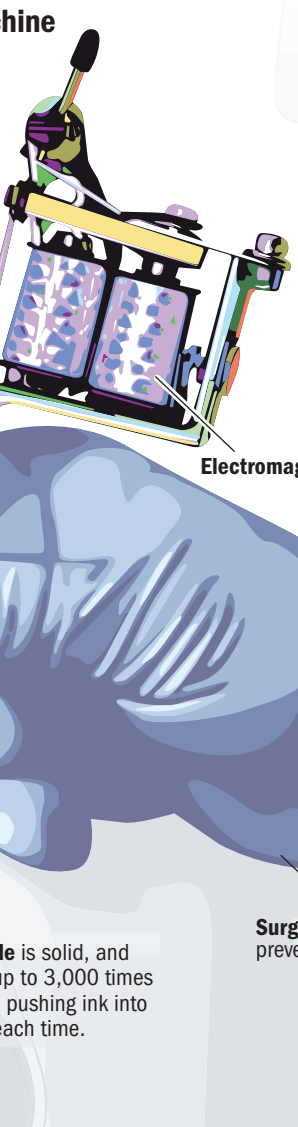
2 The drawing is outlined with a fine needle and light ink.

3 The lines are darkened and shaded with a heavier needle.

4 Colored ink is added, followed by further darkening of the black lines.

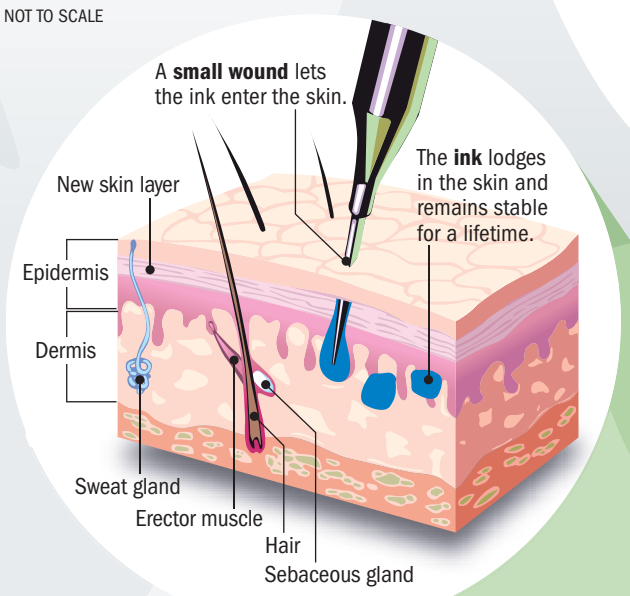
The tattoo machine

Although tattoos can be made by hand with ink and needle, commercial tattoos are made with a machine.



How ink gets under the skin

NOT TO SCALE



Tattoo history

3300 B.C. Copper Age "iceman" had charcoal tattoos.

2000 B.C. Egyptian funerary figures display tattoos.

400 B.C. Pazyrick nomads of central Asia create blue tattoos.

Since 400 B.C. Japanese create tattoos to symbolize beauty and to mark criminals

1700s Tahitian fertility tattoos introduced.

Since 1700s Maori warriors get tattoos in New Zealand

Sources: McClatchy-Tribune; National Geographic; howstuffworks.com; Himalayan Academy

AARON HARDEN | DISPATCH