PubDate: 02-17-09 Page: 4 B Edition: 1 Replate: User: kmetts Color:K

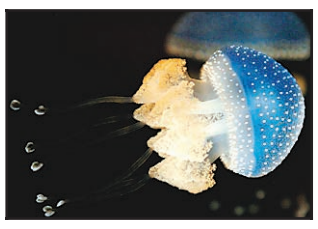
Science blog

▶ To read Dark Matter on the Web, go to **blog.dispatch.com/darkmatter/**

SCIENCE BRIEFS

Absolute humidity key in spread of flu

Studies of seasonal influenza have long found indications that flu spreads better in dry air. Now, new research recently published in *Proceedings of the National Academy of Science* indicates that the key is the absolute humidity — which measures the amount of water present in the air, regardless of temperature — not the more commonly reported relative humidity. Relative humidity varies depending on air temperature; absolute humidity doesn't. "The correlations were surprisingly strong. When absolute humidity is low, influenza virus survival is prolonged, and transmission rates go up," said Jeffrey Shaman, an Oregon State University atmospheric scientist who studies ties between climate and disease. The correlation between flu and low humidity is important because in cold winter weather, when flu is most common, even a high relative-humidity reading might indicate little actual moisture in the air. The less moisture there is, the happier the flu virus seems to be.



Jellyfish protein might help to grow cartilage

Mucin, a protein extracted from Nomura's jellyfish, has proved highly effective in regrowing cartilage in joints, scientists in Japan say. The finding might provide a beneficial use of the jellyfish, which has been a damage-causing plague to Japan's fisheries. The curative effect of the protein nearly doubles when it is mixed with hyaluronic acid, a chemical usually used for the treatment of osteoarthritis, according to the results of experiments on rabbits at Tokai University and the Institute of Physical and Chemical Science. The results of the research are to be officially reported at a meeting of the Japanese Society for Regenerative Medicine in Tokyo in March. Kiminori Ushida, head of the institute, and his team succeeded in extracting the protein from the jellyfish. The research team eroded cartilage in the knee joints of rabbits to induce symptoms of osteoarthritis and later injected hyaluronic acid mixed with mucin into the worn joints. When they examined the rabbits 10 weeks later, the worn-down cartilage had almost totally regrown.

Birds aren't flying as far south for winter

An Audubon Society study has found that more than half of 305 birds species in North America are spending the winter about 35 miles farther north than they did 40 years ago. The purple finch was the biggest northward mover. Its wintering grounds are now more along the latitude of Milwaukee, Wis., instead of Springfield, Mo. Bird ranges can expand and shift for many reasons, among them urban sprawl, deforestation and the supplemental diet provided by backyard feeders. But researchers say the only explanation for why so many birds over such a broad area are wintering in more northern locales is global warming. In the 40 years covered by the study, the average January temperature in the United States climbed by about 5 degrees Fahrenheit. That warming was most pronounced in northern states, which already have recorded an influx of more southern species and could see some northern species retreat into Canada as ranges shift.

— From wire reports

HOW TO REACH US

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

CHRIS RUSSELL | DISPATCH PHOTOS

The competitive pool at the McCorkle Aquatic Pavilion at Ohio State University features deep gutters that keep water from bouncing back on swimmers.

Built for speed

OSU pool designed to calm waters, cut times of swimmers

By Suzanne Hoholik
THE COLUMBUS DISPATCH

There is a gas that hangs above the water in many indoor competitive-swimming pools, a noxious mixture of chlorine, sweat, saliva and urine.

"These fumes rise at pool level, and swimmers breathe it," said Bill Wadley, who coaches the men's swim team at Ohio State University.

Not at the McCorkle Aquatic Pavilion at Ohio State, where builders installed a filtration system with deck-level vents on the walls to draw in bad air.

The pool also has a 20-foot deck around it, stands on both sides and improved lighting.

"Things like that reduce the stress that the athlete has," Wadley said. "If you reduce the stress of the athlete, they perform at an improved level."

And if you put those relaxed athletes in a state-of-the-art pool built for speed, their times drop.

The McCorkle has a reputation for fast water.

It's not one thing that makes this pool fast, but a collection of things — the depth, number and width of lanes, deep gutters, and water inlets at the bottom of the pool — that reduce waves.

"The entire goal of making a fast pool is keeping the water as flat and smooth as possible and getting it back to that as soon as possible," said Doug Cook, an engineer at Counsilman-Hunsaker in Denver who designed the pool.

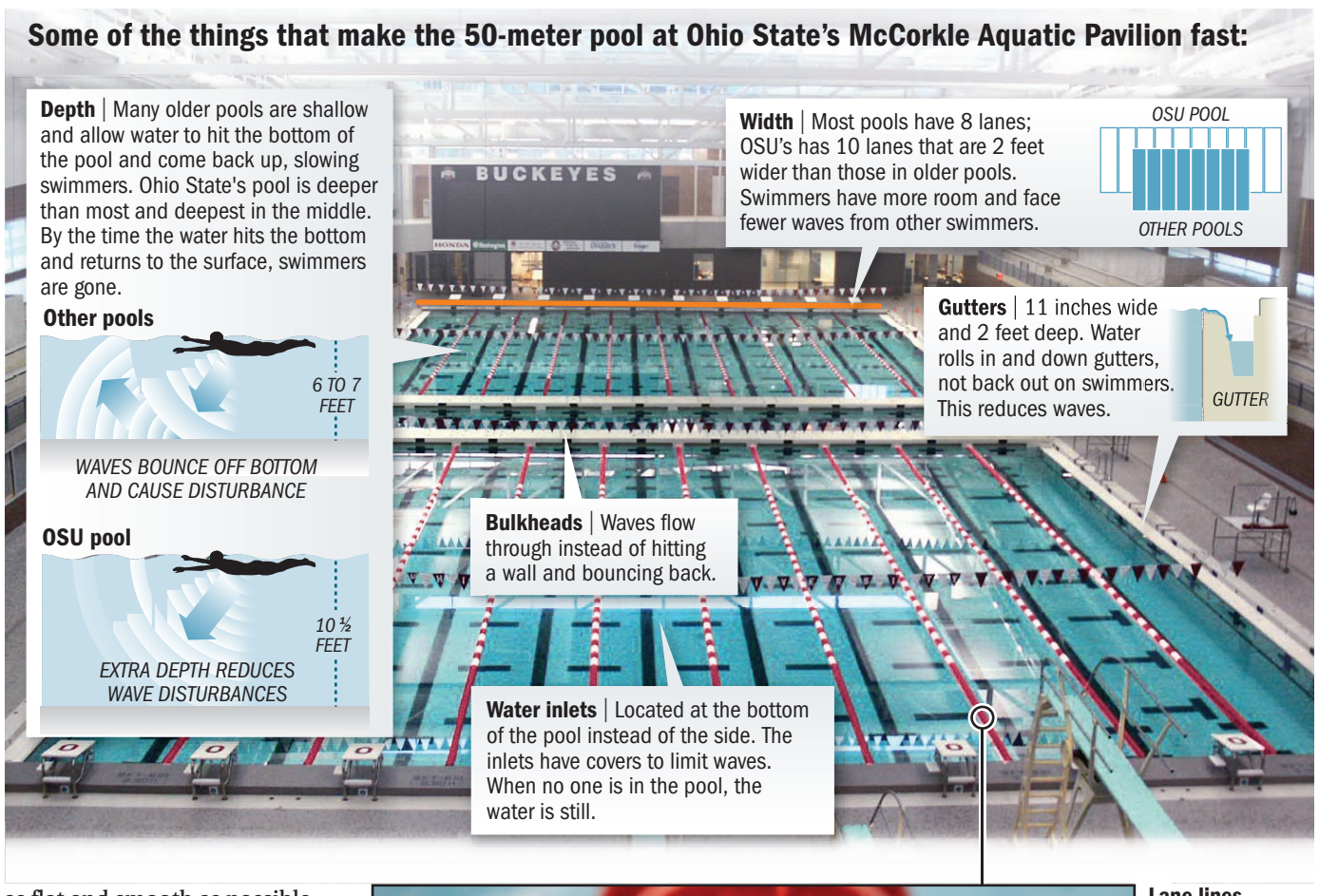
"The gutters capture those waves. There's no deflection off the walls."

• • •

The $25 million pool complex opened in 2005. The competitive pool is one of several used for athletics, student and faculty recreation and physical edu-

See **SPEED** Page **B5**

Some of the things that make the 50-meter pool at Ohio State's McCorkle Aquatic Pavilion fast:



Lane lines 8-inch wave-eaters have small holes that let water flow through and dissipate.

Source: Ohio State University

TIM MEKO | DISPATCH

Tinkerer's vision could help needy see

By Laurie Goering
CHICAGO TRIBUNE

Eyeglasses using the simple, self-adjusting technology are poised to revolutionize the way the world's poor — and possibly the rest of us — see.

OXFORD, England — Joshua Silver, a lifelong tinkerer, was fiddling around one day with a cheap, water-filled lens he'd built as an optics experiment when he noticed something interesting.

By adding or removing water, he could not only change the power of the lens, he found, but he also could use it to very accurately correct his nearsightedness when he looked through it.

"I was struck by the quality of the vision I could get with a device I could make for pennies and I could adjust myself," the Oxford University atomic physicist remembered. "My immediate thought was, 'If I can correct my own vision so easily, could other people?' "

Yes, it turns out. Eyeglasses using Silver's simple, self-adjusting technology are poised to revolutionize the way the world's poor — and possibly the rest of us — see, potentially coming to the aid of billions who struggle to squint enough to farm, study, drive or hold down any job.

"With this technology, you can make your own prescription eyewear," said Silver, who has turned out about 30,000 pairs of the cheap glasses. He hopes to find funding to distribute a billion pairs to people around the world who either are too poor to afford glasses or live in places such as sub-Saharan Africa, where the ratio of opticians to residents is purportedly 1 to 1 million.

Eyeglass companies in the developed world also are snooping around Silver's idea, tantalized by the possibility of manufacturing glasses that could give wearers the ability to change their prescription with a twist. Goodbye, bifocals.

In a world where just about everybody older than 45 needs reading glasses, and just 5 percent of the world's poor get the vision correction they need, "the market is close to 3 billion people," said the 62-year-old inventor, who took up studying optics to better view atomic structure and still considers himself a rookie at understanding vision.

Silver's glasses, now in use in 15 African and eastern European nations, look as if they might pair well with a fake mustache. Thick Coke-bottle lenses sit in dark tortoiseshell frames flanked by a syringe on each temple. By turning dials, the wearer pushes more or less fluid into the lenses, which are protected between two hard polycarbonate covers. Once the prescription is perfect, the syringes can be removed or left in place to allow further changes.

The reaction from new wearers "is universal," said Maj. Kevin White, a Marine Corps logistics expert who persuaded the Department of Defense to buy and hand out 20,000 pairs

See **VISION** Page **B5**