

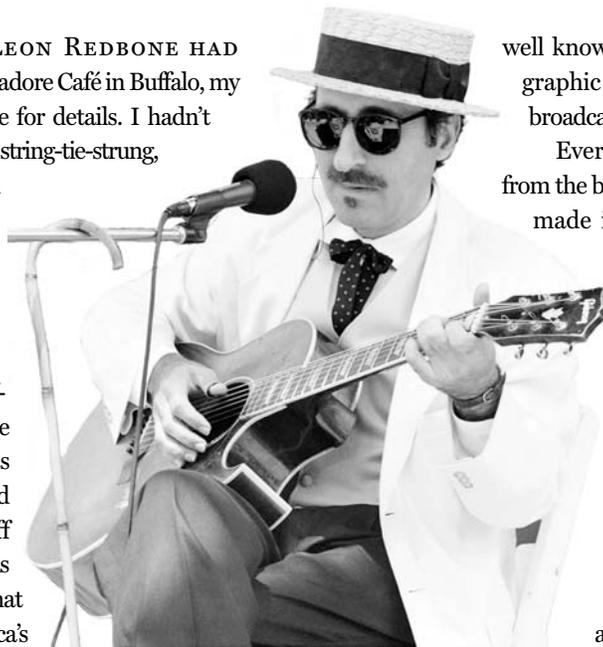
The Web's Random Logic

The Internet's oceans of information seem to defy comprehension, but that doesn't prevent us from trying—often successfully—to make sense of it all.

BY JEFF PORTER

WHEN I HEARD THAT LEON REDBONE HAD recently played at the Tralfamadore Café in Buffalo, my old hometown, I went online for details. I hadn't seen the Panama hat-wearing, string-tie-strung, bantering blues performer in years. I wondered if he still looked like Frank Zappa on diazepam. Googling the name and place produced an inventory that ran for several pages. Redbone's show in Buffalo was buried deep down the list. At the top was a YouTube video of a herd of Cape buffalo facing off against a pride of lions. This was the "Battle at Kruger" video that a tourist filmed at South Africa's Kruger National Park in 2004, which went viral when it was posted online and became so

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well known that the National Geographic Channel picked it up for broadcast a couple of years ago.

Every Google search benefits from the billions of queries users have made in the past, generating a mathematical model of the way words are put together. Each query triggers a Web crawler (called a "spider") that scours the Internet, gathering URLs and tagging hyperlinks. The popularity of "Battle at Kruger" convinced the Web spider that I had made a mistake when typing my entry. Did you mean *Lion*

and Buffalo? I was politely asked. The many hits tallied by the sensational nature video weighed heavily against my interest in the blues. And of course, in Spanish *lion* is *león*. Not one to be pushed around by an algorithm, I was about

to scream indignantly at Google's candy-stripe logo—but not before I played the lion clip.

Already I have forgotten Leon Redbone. His name is a vanishing signifier in the hullabaloo that is my hippocampus. I scroll down the search list, losing all focus, and stumble onto another Leon in Buffalo. The infamous one. I click on “Leon Czolgosz and the Trial,” part of a centennial site created by the University of Buffalo Libraries to commemorate the Pan-American Exposition of 1901. The site is rich with information I never encountered when visiting the Buffalo Historical Society as a kid. A bottle of beer and a sardine sandwich cost 30 cents at the Pabst Restaurant on the Exposition Midway. The first exhibit on the Midway, if you're wondering, was Eskimaux Village, constructed of papier-mâché and plaster to represent the faraway frozen North, peopled by Inupiaq men and women who mounted spear-throwing contests, dogsled races, and kayak competitions. I try to imagine these scenes unfolding in Buffalo, in Delaware Park to be precise, native Alaskans overdressed in animal skins come all the way from the North Slope running in and out of imaginary igloos. Luckily, there's a link to a movie of Eskimaux Village made by Thomas Edison. The 52-second clip shows several Inupiaq men overdressed in animal skins running in and out of imaginary igloos chasing three baffled Siberian huskies. The link has taken me to the Library of Congress's American Memory project.

Six years ago, the Library of Congress signed on with Google and institutions from Egypt, China, and Canada to digitize a million books. The idea was to create a massive virtual storehouse of information—

the Library of Alexandria, only without the gardens. Writers and publishers have been raising a stink over this, worried that the giant Internet company will gain enormous leverage over the distribution of books, but progress toward a global electronic library is unstoppable. The Library of Congress has already scanned, digitized, and uploaded some 19 million historical documents and other items—everything from slave records and photos of the American frontier to the biography of Harry Houdini.

American Memory, which includes the bulk of these digital artifacts, is not a work of art. The home-

page provides a simple outline and one or two small

images, and the internal links take you to a bare-bones data-

base. The whole thing is as sexy as a lawnmower. I click

on the Presidents tab and navigate down the list to “The Last

Days of a President: Films of McKinley and the Pan-American Ex-

position, 1901.” I'm looking for a facsimile of the police report filed

on Czolgosz, McKinley's crazed assassin. I click next on Early Motion Pictures, scrolling down

to a film labeled “Execution of Czolgosz, with panorama of Auburn Prison.” After being beaten severely, Czolgosz was tried, convicted, and transferred to Auburn Prison, in the Finger Lakes region

of upstate New York, where he was electrocuted a month later. The film opens with railroad cars passing by, then follows uniformed guards who escort Czolgosz down murderers' row. There's a cut to an isolated chairlike contraption with wires attached.

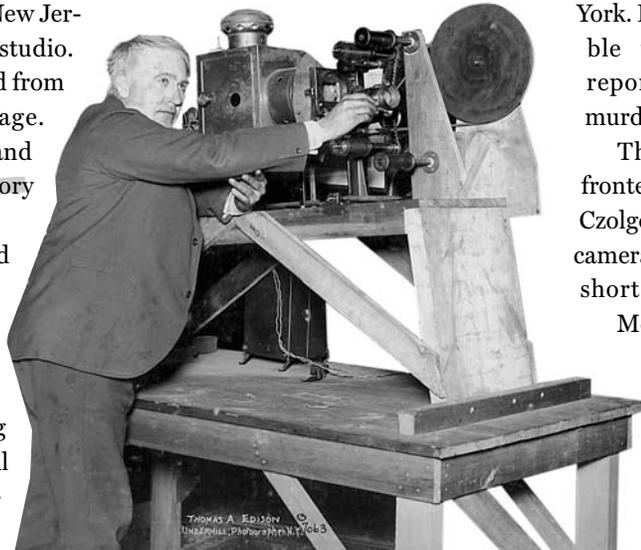
Czolgosz is strapped in, the current is turned on at a signal from the warden, and the assassin's body rises up three times, as though heaving from a bad



dream, then falls slack. The doctors report to the warden that he is dead.

"Execution of Czolgosz" is a wicked little movie. If it weren't a reenactment, it might qualify as the first snuff film. The short was produced by Thomas Edison, and the electrocution sequence was shot with actors in West Orange, New Jersey, at Edison's Black Maria studio. But this back story is withheld from the Library of Congress page. Impatient, I've already cut and run from the American Memory project.

In a frenzy of clicking and rapid eye movement, I'm collecting facts from various sources. Wikipedia tells me that Auburn Prison had the dubious distinction of being the first penal institution to roll out the newly invented electric chair. The Canadian Coalition Against the Death Penalty tells me that William Kemmler, who murdered his girlfriend with an ax in Buffalo, was the first convict ever to be electrocuted at Auburn. (That was in 1890.) The site also summarizes the intense rivalry between George Westinghouse and Edison over electric-chair technology, another episode in the war between alternating current (AC) and direct current (DC). A few years later, Westinghouse lit up the Pan-American Exposition with AC. Elsewhere I learn



that Edwin S. Porter (no relation) directed the short movie for Edison, Porter being the same man who would soon become famous for *The Great Train Robbery* (1903). This bit of information gets me to Paghat the Ratgirl's Film

Reviews, where it is suggested that Edison was interested in making the Czolgosz film largely because he wanted to brand anything associated with electricity with his own name. At www.buffalohistoryworks.com I find out that Czolgosz was the 50th casualty of the electric chair in New York. I also, at last, stumble upon the police report of McKinley's murder.

The document is fronted by a mug shot of Czolgosz staring into the camera. The narrative is short. "While Wm.

McKinley the President of the United States was holding a public reception in the Temple of Music at the Pan-Amer. Expo-

sition, he was shot in the abdomen twice with a .32 cal. revolver." I have seen this face before, in middle school, and the pistol pointed at McKinley's chest. It was a cold November day when our class visited the "Infamous Crimes" exhibit at the Buffalo Historical Society. Czolgosz's gun, a .32-caliber Iver-Johnson revolver, was tucked on a dark mahogany shelf behind glass. McKinley had been glad-handing the public in a receiving line outside the domed Temple of Music. At 4:07 p.m., the disgruntled Czolgosz reached the front of the line and, at point-blank range, shot McKinley twice. In the Czolgosz photograph, there is no trace of the "diabolical" anarchist described by the press. No mustache, no extremist fervor. It's not a portrait of a bloodthirsty gunman.

In one of those strange congruencies that no one later believes is true, I happened to be gazing at the revolver (it seemed so small) when news of the shooting of President John F. Kennedy in Dallas spread through the hallway and then exploded into startled cries and hysterical screams. For a moment I felt implicated, as if gawking at the pistol were regicidal, some sort of thought crime. That's what I recall now,

the shadowy museum, the revolver, the photograph—and the footage of Lee Harvey Oswald's own assassination two days later. These sites can't be moused over, for memory is an ancient mystery.

My Google search has taken little more than 20 minutes. I've bounced around a universe of digital information, zigzagging through time and across a patchwork of nodes. Some research suggests that Internet surfing stimulates the brain. In one recent study, neuroscientists at the University of California, Los Angeles, placed 24 subjects in an MRI machine while recreating the experience of Googling and found increased activity in the prefrontal cortex, the part of the brain responsible for complex reasoning and decisionmaking. Book lovers also underwent scans, but simple reading triggered far fewer neural circuits. "There's evidence that the more the brain is active," said one researcher, "the more the brain makes connections." Searching the Internet may even be addictive. In a survey a few years ago, more than 90 percent of American office workers said they surfed the Web, and among those, roughly half said they would rather give up their morning coffee than go offline.

Today, the debate is either/or-ish. Some say we are getting dumber on Google, some say smarter. It's anybody's guess where this technology will take us, but I have a hunch the outcome will be more complicated than we currently think. In my own case, the buzz I felt wasn't triggered by the digital distractions of Web surfing so much as by a growing desire to connect the dots between random data points. It was the buzz a gamer might feel. I was looking for the next level, as if the Internet were a colossal game space with uncharted secrets. As a player, I had to respect its digressive structure.

Another search, another click, and I'm back to Edison's Black Maria. The tarpapered West Orange motion picture studio was closed in 1901 shortly after Edwin Porter's completion of "Execution of Czolgosz," and demolished two years later.

On Google Maps, much of this part of northern New Jersey looks bleak. Two blocks away from the Edison site I see a conspicuously vacant lot at the corner of Alden and High streets. I toggle to Wikipedia. Here, comprehensive demographic data on West Orange is at my fingertips. As of the 2000 census, there was a population density of 3,700 people per square mile (where I live it's 53), and the median household income was \$69,254. Industrial from the start, the township was home to the Orange Beer Brewery, Thomas E. Edison, and the U.S. Radium Corporation. The latter was famous for manufacturing "glow-in-the-dark" timepieces, many of which were shipped overseas to American soldiers fighting in the blacked-out trenches of World War I. That in itself isn't much of a story, but I linger long enough to learn that the firm's employees (women who tipped their brushes in their mouths while painting the dials of watches and instruments with a radioactive substance) met a horrible end in one of the greatest epidemiological catastrophes of the period.

When I find out that the vacant lot at the corner of Alden and High is the former site of the U.S. Radium Corporation, I grope for the right adjective. An unexpected narrative is coming to life, as if there were a kind of haphazard intelligence lying in wait at these data points. Information that is random only in appearance is using me to arrange itself. I am the conduit through which it streams into existence.

U.S. Radium employed an estimated 4,000 women as dial painters from 1917 to 1926. The inges-





tion of radium paint resulted in a condition called “radium jaw,” a painful swelling of the upper and lower jaws, and ultimately led to the demise of many dial painters, most in their late teens and early twenties. When Grace Fryer, who had worked at U.S. Radium for three years, blew her nose, her handkerchief glowed in the dark. Soon, Fryer’s teeth fell out and her jaw swelled to enormous size. The mysterious deaths of the dial painters were often blamed on syphilis. Eventually Fryer and three other dial painters took U.S. Radium to court, but by the time legal procedures began, the four—dubbed the “Radium Girls”—were in bad shape. The two not confined to bed were unable to raise their arms under oath. Fryer needed a back brace just to be there.

H haunted by the Radium Girls, I toggle back to American Memory and type “radium” in the search field. Up comes a list of 42 items,

three of which point to the U.S. Radium Corporation, 422 Alden Street, West Orange, New Jersey. I’m wondering how this story in particular, one industrial tale out of a thousand, wound up in the digital archive of the Library of Congress. The collection features several black-and-white photos and a lengthy report on the history of the U.S. Radium Corporation’s two-acre complex, which was designated a Superfund site in 1982. To complete the cleanup, the whole neighborhood would have to be decontaminated and the moribund factory buildings would have to be demolished. Not, however, before a cadre of writers and photographers converged on the area in a documentary blitz. The ill-famed U.S. Radium Corporation was not exactly an American treasure, like Edison’s nearby labs, but its toxic role in early-20th-century labor history was recorded on 18 reels of microfilm.

Many of the photographs are simply a record of deserted buildings soon to be leveled, cinder-block

structures with broken windows and peeling paint, embellished with giant strokes of graffiti. Inside, the complex is littered with industrial debris and discarded junk, strewn haphazardly, as though the owners had left in a hurry. There are a dozen large canisters in one building looking vaguely perilous; in another is a large mixing drum where perhaps radium and zinc sulfide were combined with resin. A wasted place. Where are the young women?

They are in a different database, where I download a black-and-white photo of the dial painters. Hunched over their deadly jars of radium, 15 young women meticulously outline the hands and faces of clocks, licking their brushes. The photo was taken in the Paint Application Building of the U.S. Radium Corporation in 1922. Most of the girls were happy to have such a well-paying job, though no one is smiling in the photo. The windows are half open to ventilate fumes. The women wear earmuffs. At the end of the workday, the girls brushed the buttons on their sweaters, even their eyelids and fingernails, with luminous paint to make them glow in the dark before going out on dates. What you can't see in the photo are the swollen faces and crippling lesions of those with acute radium poisoning, severe anemia and leukopenia, symptoms that could manifest anywhere from one to seven years after exposure. Death came within months of the first symptom. By some estimates, at least 100 dial painters died from their brief stints at U.S. Radium. The productive workers, those girls who painted hundreds of clocks a day, died soonest.

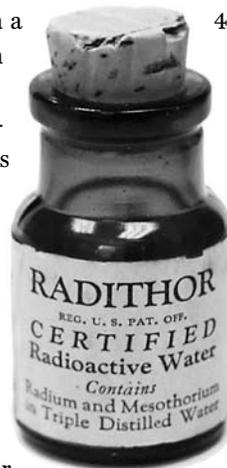
The medical community routinely assured dial painters that handling radium was safe. In fact, company physicians suggested that exposure to low doses of radioactivity was good for their health. Since the turn of the century, radium had been portrayed as a miracle drug that could cure anything from acne to

lockjaw. Marie Curie herself kept a glass vial of radium salts on a stand next to her bed for comfort.

As late as 1927, the novelty of radium hadn't worn off. In that year, a wealthy Pittsburgh industrialist, Eben Byers, was advised by his doctor to try Radithor

HOW DID THE STORY of the Radium Girls wind up in the digital archive of the Library of Congress?

for the chronic pain in his arm. Radithor was a popular nostrum bottled and marketed by the notorious quack and confidence man William Bailey, whose Radium Laboratories sold half-ounce bottles of "certified radioactive water." Unlike many bogus remedies, Radithor was in fact radioactive. Byers, 49, became Bailey's best customer, drinking as many as three bottles of Radithor a day, believing it had not only healed what ailed him but rekindled his sexual vitality. (Radium was frequently marketed as a kind of Viagra, as in Vita Radium Suppositories.) In two years' time, Byers went through 1,400 bottles. Two and a half years later, he began complaining of chronic headaches and weight loss; soon his teeth fell out, holes formed in his skull, and his mouth collapsed. As a headline in *The Wall Street Journal* read, "The Radium Water Worked Fine Until His Jaw Came Off."



Radithor was manufactured in East Orange, New Jersey, from 1918 to 1928. It was removed from the market in 1931, but by then half a million bottles had been shipped worldwide. William Bailey became very rich. His facility was only a mile from Edison's lab and the U.S. Radium Corporation. The string of municipalities known to New Jerseyans as "the Oranges" were the radioactive hub of the world.

Most of this history is available on the Web, but there is another site, an old-fashioned terrestrial archive, where America's fascination with radium

is preserved in the raw—the William J. Hammer Collection at the National Museum of American History in Washington, D.C. Among the 100 boxes of documents in the collection—including more than 30 cubic feet of letters, diagrams, photographs, sketches, books, and magazines—are several folders containing newspaper clippings from around the country speculating on the mysteries of radium.

Hammer, a former high-level assistant to Edison, became obsessed with radium while in Europe in 1902. He assisted the Curies for several months in Paris and was rewarded for his efforts with nine tubes of radium, which he brought home to Newark. It was Hammer who invented luminous paint and radium-water cures. He hired several newspaper clipping services to track and gather reports on radium in the popular press. The closest thing to Google at the beginning of the 20th century, the clipping services gleaned a trove of articles and advertisements from daily newspapers, trade journals, and popular pamphlets, all of which became part of the vast collection Hammer accumulated.

To see the radium clippings you have to go to the third floor of the archives center at the museum. There, in Box 19, Series 3, are crammed scraps of yellowed newsprint, bizarre articles from around the country on the wonders of radium. Brittle and flaky, the newsprint cracks along the edges, and brown debris falls in your lap. The news has not quite disintegrated, but its fragility, the fragility of information, is disquieting. We expect archives and the documents they contain to last forever. But they don't.

Several clippings in the Hammer files describe a 1904 event when MIT alumni gathered to attend the ninth annual dinner of the Technology Club in New York City. The theme of the night was radium. A wineglass was placed before each guest filled with "liquid sunshine," a solution produced by stirring together the bark of the horse chestnut, quinine, and water, then inserting a radium tube that produced enough "radio-activity" to give off "ultra-violet

rays." Following dinner and a round of speeches, the lights were dimmed as members of the Technology Club rose to toast their alma mater. There was an awkward pause; then a member shouted, "There, I can see it now," his cocktail glowing with a brilliant blue fluorescence.

The sheer number of articles on radium is overwhelming, each one reflective of a collective fantasy that knew few limits. Particularly absurd are accounts describing the efforts of dermatologists to bleach the skin of blacks. A Philadelphia physician, for example, stumbled onto the possibility of "turning a Negro white with the Magic Rays of Radium" when removing moles and facial blemishes from his patients. In one instance, he produced white blotches on a black man's face while bombarding his birthmark with X-rays and radium. "Then came the happy idea that caused both doctor and patient to thrill with pleasure," a reporter explained in a local magazine in January 1904. "Why not continue the process and change the entire color of the patient's skin from mahogany to white?" For more than two months, the patient received daily doses of radium and X-rays, and reportedly "changed completely to a white man." Two weeks later, a New York newspaper ran the story "All Coons to Look White." Women too were targeted. Gynecologists were particularly eager to give radium a try, believing that a woman with excessive menstrual flow could correct her problem simply by inserting radioactive tubes into her uterus.

One spectacle led to another. Lines formed at public demonstrations across the nation wherever radium went on exhibit, as many hoped for a chance to see the uncanny element glow in the dark. "All day long crowds swarmed, pushed, and elbowed their way to this little bit of powder," reported *The New York Sun* when New York's American Museum of Natural History put radium on display. At the 1904 World's Fair in St. Louis, record-breaking crowds stood patiently outside the mines and metallurgy building waiting to glimpse a gram of radium. "There is something weird and even awe-inspiring in watching the action of this invisible force," wrote a journalist for a Connecticut newspaper.

In 1929, the average person could buy 80 patent

Illustrations: p. 30, Leon Redbone; p. 31, water buffalo; p. 32, (top) Thomas Edison with his moving picture machine, (bottom) Leon Czolgosz after his arrest; p. 33, still from "Execution of Czolgosz"; p. 34, the Radium Girls; p. 35, a bottle of Radithor; p. 36, Roberto Bolaño.

medicines containing radium. It was available in pills, bubble bath, anodynes, and suppositories. It was advertised as an ingredient in candies, cocktails, aphrodisiacs, and toothpastes. But the publicity evoked by the deaths of Eben Byers and the dial painters dampened radium's popularity. By the late 1930s, radium was more likely to appear in a horror feature such as Boris Karloff's *The Invisible Ray* than in mouthwash ads.

What began as a search for Leon Redbone ended, by way of the 20th century's first assassin, at the unmarked gravesite of some young New Jersey women. Fishing for information, I stumbled on the story of little-known people who in their day had become headline news. How many remember Leon Czolgosz, the once notorious son of Polish immigrants, who worked at the American Steel and Wire Company in Cleveland, suffered a nervous breakdown, read socialist newspapers, and became reclusive—who said he killed McKinley because he was an enemy of working people? Who recalls Amilia Maggia, the daughter of Italian immigrants, one of seven sisters who worked at the U.S. Radium Corporation, she of the ravaged mouth and crushed bones, from whose nose escaped a black discharge smelling of garlic? Their fragmentary stories have materialized out of the tailings of a history that survives by chance in random archives and databases. I have a feeling that were I to turn off my laptop, they would disappear forever.

All of this may seem entirely improbable, if not arbitrary, but that's the point. In the age of information, meaning happens by happy accident. It's not an attainment of the will, but something else that we haven't named yet—something strangely inexplicable, like Planck's constant or

black body radiation. A degree of indiscriminate randomness has entered our lives and is altering the way we come to know things. New technologies prompt us to synthesize data that is more and more disparate. Did you mean *Lion* and Buffalo? asks Google. "Mark Anthony added you as a friend on Facebook," an automated e-mail says. (Who's that?) Over on Amazon, I want to buy a copy of *The Collected Poems of Wallace Stevens*, but first I have to go through customer service: Readers who bought this item also bought *The Romantic Dogs* by Roberto Bolaño.

Which is how I discovered the Chilean author.

It's hard not to imagine that randomness is a side effect of the massive, unprecedented effort to concentrate and arrange all information online in searchable databases. The Library of Congress went into a digitizing craze in the 1990s, uploading books, movies, photographs, and audio recordings onto servers at a furious rate. More than a decade later, everything is being fed into computers, from credit reports and phone conversations to the three billion building

blocks of the Neanderthal genome map. As Wallace Stevens knew, a violent order can also be a disorder. This is what modern literature teaches us, not that order comes from chaos but the other way around. Yet we also know that part of the inspiration for Web 2.0, as the socialized Internet is called, lies in the assumed relatability of the unrelated.

Like the followers of Hermes Trismegistus, Web mongers and marketers believe that everything is linked, and they generate algorithms based on theories of fuzzy connectedness to make it so. What's surprising is how well the human imagination takes to the extravagance of random order. Necessity may be the mother of invention, as the old adage goes, but the road of excess still leads to the palace of wisdom. ■

