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Buried Treasure

Why has Bill Gates stashed millions of the greatest images of the 20th century under a mountain in Pennsylvania?

By *Mary Battiata*

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It's nice down here, 220 feet below ground. It's dry and cool -- a springlike 60 degrees Fahrenheit. There is a breeze coming through the tunnels that smells like dust and something older than dust, the souls of the limestone miners, maybe, who began dynamiting this catacomb into existence 101 years ago.

The only sound is a constant low thrumming, like the din of a ship's engine. There is a narrow roadway no wider than a country lane. A service van drives by, and then an electric golf cart. There are security guards, too, around every corner.

"Keep it with you at all times," the guard at the gate had said, passing a fire extinguisher into the car as he'd waved me ahead toward a dim gray plaza, from which a maze of identical-looking gray tunnels snaked off in every direction.

A fire extinguisher?

Welcome to Iron Mountain, the largest commercially owned underground storage facility in the world. This is where Bill Gates, founder of Microsoft, has deposited his huge and growing collection of historical photographs -- approximately 11 million negatives, prints, slides -- a cache that represents a culturally significant chunk of the visual history of the 20th century.

Down here, underneath the far reaches of western Pennsylvania, in a cold and gleaming vault big enough to stage a Busby Berkeley dance number, a Gates-owned company called Corbis has constructed a home that includes the storied Bettmann Archive, with its sprawling collection of photos and illustrations (film director Martin Scorsese drew on it heavily for "Gangs of New York"); the archive of United Press International, including its vast array of photographs from the Vietnam War; and more than a dozen smaller photo collections.

The vault is the only privately owned, subzero underground vault in the country, and probably the world. It is the coldest, and, it's fair to say, the most controversial.

Until the photographs were moved here in a caravan of 18 refrigerated vans in 2001, most of them had been stored for decades in a series of creaky office buildings on lower Broadway in Manhattan. And there they might have stayed, except for one problem. The pictures were dying. Deteriorating rapidly and dramatically -- buckling, fading, mottling, fairly shrieking for help, like the wicked witch in the Wizard of Oz.

"It was obvious to anyone who came through the door that we had a problem," said one Bettmann photo researcher. "The whole place smelled like vinegar."

The Bettmann was not the only photography archive so afflicted. In fact, it was only the tip of an ugly

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iceberg. Over the past 20 years, photography archivists and preservationists have discovered, to their consternation and dismay, that huge swaths of the pictures taken during the past 100 years -- the century of photography -- are disintegrating, undergoing a spontaneous chemical decomposition that will, if left unchecked, render most of them unintelligible and unusable within the next 20 to 50 years.

This gradual realization (still not well understood outside preservationist circles) has come as a bit of a shock, to say the least. After all, wasn't photography supposed to be eternal, a sturdy, unchanging letter to the future, permanent as marble, our small handhold on immortality, capable of representing us long after we are gone? The Egyptians had pyramids. We have snapshots, right?

There was a cure. It was cold storage, and the colder the better. And so, Corbis, which had bought the Bettmann Archive in 1995, began constructing a meticulously designed, highly sophisticated vault space.

Corbis presented the move to cold storage as a commercial necessity -- move it or lose it. But it also acknowledged an element of public stewardship in the decision. The Bettmann was and always had been a private business -- a kind of lending library for photographs used by New York's publishing and advertising industries. But over time the most familiar images had acquired something of a quasi-public character and become beloved. After almost 80 years in business, the little archive built by German immigrant Otto Bettmann from a few steamer trunks had achieved a kind of landmark status of its own.

In New York, however, some of the editors, art directors and photo researchers who'd used the Bettmann for years greeted news of the move as less of a rescue operation than a cultural hijacking. "Eight hours from Manhattan?" Gates might as well be taking the pictures to the moon, critics said.

Corbis pointed out that it was already well along in its plan to digitally scan many of the pictures, creating an electronic archive that would be available online to anyone with a computer anywhere in the world. So the physical location of the original images would be irrelevant. And the storage facility was a vault, not a grave, Corbis officials said. Any prospective client who was uncomfortable using the digital archive and wanted to look through actual photographs the old-fashioned way -- with hands and eyes -- would always be welcome at Iron Mountain. (And the truth was, most clients hadn't visited the stacks in years, relying instead on the archive's crack crew of photo researchers to retrieve pictures from the filing cabinets.)

But critics were not appeased. Exactly how many of the images would Corbis be scanning, they wanted to know, and didn't any selection process for digital scanning amount to a kind of de facto censorship? And who was Bill Gates anyway to decide what the public would and would not see?

The objections were a bit presumptuous. Corbis was the legal owner of the Bettmann collection and was entitled to do anything it wanted with the pictures. And that may have been part of the problem. There was in the complaints a whiff of mistrust, almost on principle, of Bill Gates himself. Could the richest man in the world, the man who'd forced Microsoft software on everyone, really be trusted to take care of the beloved Bettmann? Wasn't there something imperial, something just a little bit sneaky about a plan to spirit the Bettmann archive to an abandoned mine somewhere in western Who-knows-where-ia?

What was Bill Gates doing down there?

As it turns out, the Iron Mountain storage facility is a bit short of the moon. It lies directly underneath the tiny hamlet of Boyers, Pa., about 65 miles north of Pittsburgh, an hour's drive from the Ohio border. Above ground, the morning sky is a bright and hard blue. Down here, the only light comes from the line of light bulbs that dot the dim vaulted ceiling.

Security has been tight ever since the facility opened in 1950 at the height of the Cold War. But since 9/11, it's been harder to get in here than into the White House. To find this place, you drive north from the small town of Butler, along a rolling mountain road that plunges through small towns and farmland interrupted by stands of fir trees and small flocks of pickup trucks. The Allegheny National Forest is not

far northeast of here; red-tailed hawks wheel in the air overhead. When you arrive, there is a big driveway and a sign out front. Visitors thread a gantlet of guard booths, armed security officers, a slalom course of Jersey barriers, a crossing gate and a full-car search before driving to an entry station, where more guards are on hand to dispense security badges and a fire extinguisher, in case a visitor's car suddenly ignites.

Then you are finally inside, in what turns out to be a vast, underground city, with its own five-engine fire department, a 24-hour armed security force, EPA-certified air and water filtration plants, banks of expensive dry-desiccant dehumidifiers as big as tour buses, and electricity generators to keep the whole place functioning for at least a week in the event everything goes to hell up above.

There are 20 miles of roadway running through Iron Mountain's 130 acres of storage space, which in turn take up only about an eighth of the mine's 1,000-acre footprint. Visitors and the facility's 1,600 workers zip around in electric golf carts through narrow corridors with rough gray walls and 16-foot ceilings that look like the surface of a gray lake ruffled by a breeze. It's an underground cathedral, an inverted shrine to man's way with a pickax.

The miners seem to have liked it. Photographs from the 1930s show miners for U.S. Steel looking almost contented. Limestone was an essential ingredient in the smelting of steel, and typically was mined with wider and higher tunnels than in the average coal mine. The caverns left behind when this mine closed are sturdy and strong.

These days, the anonymous corridors are interrupted at irregular intervals by red metal doors, entrances to individual storage vaults leased by Iron Mountain tenants like Warner Brothers, Universal Studios, the federal Office of Management and Budget and the National Archives.

Behind each door there are long rows of metal storage shelves that stretch all the way to the ceiling, lined with cardboard boxes tagged with bar code identification stickers and filled with just about every recording material devised by man, from movie film to audiotape, microfilm, videotape, eight-track cassettes and even plain old paper.

But one doorway stands out. It is outfitted like a small outpost of sunny California, with a gleaming white wall, a door framed by two small palm trees and a discreet, dove-gray logo that reads, simply, "Corbis."

To the left of the entrance, just above eye level, is a thin, bright plasma screen, about the size of a beach raft. As I watch, it flashes, at the rate of six images a minute, some of the most beautiful and iconic photographs of the 20th century:

There's "Frida Kahlo," followed by "Truman Capote Dancing With Marilyn Monroe," then "William Van Alen in a Chrysler Building Costume," a portrait of a young Vietnamese boy, then a Bowery kid holding a newspaper circa 1900, and "Nikita Khrushchev Smoking a Peace Pipe." I'm not the only one lingering at the Iron Mountain midday matinee. Behind me, I hear carts and service vehicles slowing so that their passengers can steal a glimpse. It's like the early days of television, when the curious gathered in front of appliance store windows to watch tiny people on a grainy screen. Looking at the Corbis screen, it's easy to forget that you are standing in a limestone tomb. The pictures are black and white and silver, glamorous and powerful frames that draw the viewer into their worlds, and produce feelings of pleasure, nostalgia and vague sadness -- a feeling of mortality.

So many photos are going, going, soon to be gone.

"We have roughly a century of black-and-white film to cope with," says Jim Reilly, director of the Image Permanence Institute at the Rochester Institute of Technology, "and all the color shot since World War II. [It's a] serious emergency, not just for the institutions who own the images, but for society at large. What's at stake is our visual record of the 20th century."

When Gates founded Corbis in the late '80s, its mandate was to figure out how digital images were going to be used in the computer age. The Internet was still in its infancy, and no one in the company was sure what shape the market for digital images might take, but Gates, already a collector of fine art and rare books, believed there would be one. Microsoft was already consuming digitized art and photography for its CD-ROMs.

In the mid-'90s, Corbis began acquiring its raw materials. It scooped up the Bettmann. The celebrity photo archive Outline was acquired, and the news photo agencies Saba and Sygma were added, too, as well as smaller archives with specialties in nature, space, art. The acquisitions were part of a wider shake-up and consolidation of the entire photography industry -- photo agencies, stock houses and photojournalism -- a consolidation driven by cost-cutting and other changes in the advertising and publishing worlds. This Wal-Martization, still underway, appears to be leaving two companies -- Corbis and its larger rival, Getty Images -- to dominate the photography market.

Corbis, says CEO Steve Davis, was positioning itself to be a super-provider, a wholesaler, in effect, of digitized images to the world, images that would not decay and would be available forever.

That was the idea. The problem was that the original photos were in danger of disintegrating faster than they could be scanned. So Corbis turned to experts, including Henry Wilhelm, whose 744-page book, 'The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides and Motion Pictures,' is the field's bible. Wilhelm eventually wrote a 21-page report outlining the rescue options and oversaw the vault's construction.

In many ways, Wilhelm was the ideal man for the job. He'd gotten his start in photography at Arlington's Yorktown High School, taking sports pictures for the Washington Daily News and working part time for a McLean company that studied color fading in fabrics. During an internship with Ansel Adams, he designed and patented the first multiple-print washer, a labor-saving darkroom tool still in use today. Much later, in the 1980s, Wilhelm was the technical adviser to director Martin Scorsese's successful campaign to have Eastman Kodak and Fujifilm increase the stability of their color motion picture film stock.

Wilhelm's sentimental education came during his Peace Corps service in rural Bolivia in the early 1960s. The area he was assigned to had no electricity, no plumbing. Few of the subsistence farmers knew how to read. But all were enthusiastic customers of the itinerant photographers who worked in the region. The photos they sat for became their most prized possessions, and were prominently displayed.

But that very importance preselected them for rapid destruction. Because of the instability of the film materials used there and in most of the world from the 1940s through the 1980s, the photos bleached and faded after a few years' exposure to normal daylight.

Wilhelm's prescription for the Bettmann Archive was radical and unequivocal -- subzero temperature storage for the entire collection. At 4 degrees below zero Fahrenheit, deterioration would be halted, for all practical purposes, and the photographic images would remain intact and usable for 5,000 years -- in effect, forever. With a twirl of the thermostat, the life span of the Bettmann Archive and related collections would go from that of the average porch deck to a standard achieved in the tomb of King Tut.

To anyone who doubted the science, Wilhelm explained about the woolly mammoth carcass unearthed from the Siberian permafrost in 1999. The animal had fallen into an ice crevasse, says Wilhelm, "and was essentially frozen immediately, or before he could decay." The preservative power of dry cold was such that although the mammoth carcass is believed to be more than 20,000 years old, its hide, connective tissues and flesh were largely intact.

"I was really struck by that," says Wilhelm. "It's a real demonstration of how cold storage works. The lessons for film materials are clear. The gelatin layer of film is made from connective tissue of cows, essentially the same as the woolly mammoth. There's just no doubt that this will work for film."

Corbis had been scanning pictures into the digital archive since soon after the purchase, but now the pace accelerated. Still, as the date for the move to Pennsylvania approached, the question of exactly how much of the catalogue would be digitized remained a hot button. Digitizing, it turned out, involved much more than simply slapping a photograph on a scanner and pressing a button.

While a low-resolution image (one that might be satisfactory on a computer screen, for example) could be created quickly and relatively inexpensively, at a cost of about \$3, the cost of creating higher quality images, the kind that would be attractive to the ad agencies, magazines and other outlets that Corbis was seeking, was more like \$70 an image.

This cost included labor for captioning and sophisticated cataloguing, as well as cleaning up the digital images. The cataloguing was particularly important. Any collection is only as good as its filing system, archivists say. As any home computer user can attest, there's no point in storing data if you can't find it the next day.

(And the cost of maintaining a digital archive extends beyond the first round of cataloguing. Digital images have their own form of rot, when the hardware and software on which they are stored become obsolete. The solution is "forward migration" of the digitized information to new storage formats. This problem is familiar to anyone who has information trapped inside obsolete recording media -- Beta tape, large floppy discs, vinyl or eight-track audio, the list goes on.)

Even if the cost of scanning the entire collection hadn't been exorbitant, there were other reasons to proceed slowly. Looking closely, Corbis's researchers (many of them longtime Bettmann employees) saw that only about 100,000 of the collection's 11 million original images had ever been looked at by a client, and of that number, only about 75,000 had ever sold.

Corbis set out to do a massive edit of its files, to learn exactly what had been selling well and what was likely to sell in the future. For many months, dozens of researchers tried to think like futurologists. Who was likely to die? Who might ascend a throne, win an Oscar, start a war?

It is true that once a partial digital archive was created, Corbis customers would henceforth be looking through the digital archive first rather than the physical image itself, but even that had something to recommend it, as it would reduce wear and tear on the original negatives and prints.

To critics who said that putting only a small fraction of the collection online was tantamount to depleting the world's photo diversity, Corbis countered that scanning would be ongoing. Whenever a picture sold that hadn't been part of the digital file, it, too, would be scanned and added to the pixel mountain.

Amid it all, Corbis was confronting a question being faced by archivists everywhere: How many photographs are enough? Archivists say that one result of our enthusiastic embrace of photography is that the world is awash in pictures. There are more photographs, and collections of photographs, than anyone can count or even comprehend, much less scan.

Aside from the obvious collections -- those held by NASA, the Air and Space Museum, the National Archives, the Library of Congress (which has more than 15 million images) -- there are photo collections in every federal government agency, school district, sports team, newspaper and historical society, to say nothing of the huge stock houses that supply images to advertising. Then there are the photography departments that were added to university curricula in the 1970s, which have produced an oversupply of aspiring photojournalists, who have added to the photo cacophony. The 20th century was the century of photography, and, urged on by Kodak, we all got into the act.

Pictures are important cultural documents, but not all pictures can be saved, nor should they be, says Grant Romer, chief conservator at the George Eastman House International Museum of Photography and Film. The cost would be prohibitive, and anyway, "after all, how many photographs of men with mustaches and hats do we need?"

Still, it is an archivist's axiom that the best plan is to save everything, because we are poor judges of what ephemera will be important to future generations. But choices will inevitably have to be made, by individuals, or the marketplace, or by nature itself, by sunlight and moisture, which have a way of turning an innocuous family photo display into "The Rocky Horror Picture Show."

Got time for a Kodak moment? You know the kind -- joyful, poignant, never to be repeated, but captured for all time through the magic of film.

Of course you do. How could you not? For the past 70-odd years, the photography industry, and Eastman Kodak in particular, worked tirelessly to turn photography from the province of geeky pros to the birthright, the patriotic duty, even, of the ordinary American. Much as De Beers sought to persuade consumers that every woman should have a diamond, Kodak pushed the idea that not only could you take a picture, you really should. Like a diamond, a photo was forever.

So people bought box cameras and Brownie cameras, which were replaced by SLR 35mm cameras, which fell to autofocus point-and-shoot wonders, which were replaced by drugstore disposables, which are being replaced by digital contraptions. All the Kodak moments, billions and billions of them: the prom shot with the weird haircuts, the wedding pictures with Pepto-

Bismol bridesmaid dresses, and that crazy group shot from Christmas 1962, when Uncle Mike fell into the tree.

Yes, all the Kodak moments. But have you seen them lately?

If you're like most people, you've got a few pictures on display, and most of the rest are stored away in closets or on basement shelves, next to the outgrown ice skates and the half-deflated basketball.

And why not? After all, isn't part of the appeal of photographs that they can do what we cannot -- live forever?

Well, you might want to take a look at your photo album. The endangered list includes most of the negatives of black-and-white pictures taken from the 1900s through the 1980s, much of the color photography from the 1930s to the 1980s, and virtually all black-and-white photos printed on shiny RC, or resin-coated, paper from the early 1970s to today. All of it is in peril.

The details of the problem vary according to the film material and processing used, but two examples will give an idea. In the case of black-and-white photography, the unstable element is the film base, cellulose acetate, an organic plastic widely used in photography for the past 70 years. Cellulose acetate decays over time, shedding moisture in the form of acetic acid, or vinegar. The light-sensitive emulsion that is glued on top of that base, however, the layer that actually captures the image, is extremely stable. So when the cellulose acetate back starts shrinking, the emulsion front bunches and buckles, and a piece of film that was flat begins to corrugate, with thick channels of bunched-up emulsion, from which an image can no longer be reproduced. Under normal conditions -- room temperature, average humidity -- the average piece of film negative made of cellulose acetate completely decays in about 50 years. Hot weather or moist conditions speed up the process. Thus film archives in the southern United States and in tropical climates around the world are generally in worse condition than their more northerly counterparts.

With color photography, the problems are similar, but the timeline for decay is even shorter. Color photography was introduced in the late 1930s, and became widely used after the Second World War, when Kodak labored to convert professionals and amateurs alike to color. What Kodak failed to reveal to the public, however, and even to many of its own employees, was that the new color process was far less stable than black-and-white, prone to rapid fading and blotching when exposed to sunlight. Fading was so swift -- an average of 15 years or less -- that color photographs from the Kennedy White House, for example, were found to have significantly degraded between the end of JFK's presidency in

1963 and the opening of the John F. Kennedy Library in Boston in 1979.

The problem is so widespread and profound, says Wilhelm, that when the George Eastman House mounted a traveling exhibit on the history of color photography in 1982, its curators were unable to locate even a single undamaged image from the 1940s and '50s, the first era of color photography.

The permanence problem provoked a number of class action lawsuits in the late 1970s and '80s by professional photographers who had gone out of business refunding money to clients returning badly faded prints. The Federal Trade Commission eventually got involved, and by the early 1980s, Kodak, which had continued to push the "eternity" angle in its advertising throughout the '50s, '60s and '70s, agreed to make its permanence data public for the first time, and took steps to improve film stability.

But the damage was done and could not be reversed. It could be stopped, however. In the years since the permanence problem was discovered, some institutions with large photo collections -- the Library of Congress, the National Archives -- have begun storing some valuable images in cooler vaults -- 35 to 45 degrees F. But only a handful of institutions so far have gone the subzero route. They include two presidential libraries -- the JFK library, the Jimmy Carter Library in Atlanta -- as well as NASA's vault in Houston, with its color photography of manned space flight, the National Archives of Canada, and Harley-Davidson's above-ground subzero storage facility near Milwaukee.

The Art Institute of Chicago is one of the few museums to build subzero storage for its extensive collection of color art photography, and as a result, says Wilhelm, has perhaps the only pristine collection of color photography in the world.

The Bettmann's problem was compounded by its antique physical operation. Prints, print copies and the original negatives all were jammed into manila folders, themselves stuffed into long, tightly packed rows of ancient filing cabinets. The staff coped with frequent plumbing problems by moving cabinets out from under the ceiling areas most prone to leaks.

"We had a ton of decay in the collection, and it was sort of irregular in spots. It wasn't only the older stuff that was going. The 1930s was particularly bad, but so was the 1950s," says Ken Johnston, the manager of historical collections at Corbis.

"There was already serious loss," says Wilhelm, "and in another 20 years, it would have been tremendous."

Now the time has come to test-drive the archive. The vault doors open with the sucking sound of a vacuum-sealed jar. Johnston, a former Bettmann employee who has been shepherding and safeguarding the collection since 1985, leads the way, pulling drawers open randomly as he walks. It's a balmy 45 degrees Fahrenheit inside, the temperature Corbis decided would be most practical and comfortable while human beings are still moving file cabinets into position and affixing bar code stickers on the backs of the black-and-white prints.

Each drawer pull yields treasure. One batch of folders holds images by Jacob Riis, the New Yorker whose portraits of tenement life at the turn of the last century were studies in austere eloquence. Another drawer yields negatives from the camera of Weegee, the crime-scene *paparazzo* whose sensational portraits of blood-soaked New York in the 1930s and '40s ushered in the age of tabloid photography.

But these Weegees explore unexpected territory. We have stumbled upon negatives from a rare and uncharacteristic shoot of a high-spirited, semi-posed crowd on the beach at Coney Island during a summer heat wave in the '40s. The bathers wriggle and jostle for the photographer's attention. Their faces are giddy and wild, and the scene, despite its leisure-time setting, has a manic energy.

Another drawer contains work by Pulitzer Prize-winning UPI photographer Kyoichi Sawada, whose color photographs of smoldering Vietnam battlefields seem to have been taken just yesterday, with an

eye that seems more subjective and emotional than the style of the day. There are many drawers full of his work, published frames and the outtakes that never saw newsprint.

Halfway down another aisle, we slide open a drawer and come upon an anonymous minor masterpiece, photographer unknown, an intensely emotional, color-drenched portrait of an African American baseball player, circa 1950. It would seem to have been an ordinary assignment -- a boilerplate portrait of a young athlete for the local team's news file, perhaps. But this photographer, whoever he was, instead caught his subject staring out at the camera with a brooding melancholy that rivals James Earl Jones playing Othello.

If the random tour yields unexpected riches, a planned tour of the stacks turns out to be just as rich, and equally unpredictable. Wanting to put the transplanted archive through its paces, and curious about whether critics' fears will hold up, I have asked to use the collection as any photo researcher would. That is, I have phoned my request a week earlier to Corbis's New York office. Some of what I want is deliberately obscure.

My request was forwarded to the Corbis vault in advance of my visit, to a photo researcher who put on a pair of white gloves and went trawling in the stacks. (Corbis has offices in several other cities -- including Seattle, Tokyo, Paris and London -- which sell pictures to advertising and editorial clients worldwide. That accounts for about 90 percent of Corbis's business. One of the major markets for the remaining 10 percent is Japan, where subway commuters in Tokyo pay the equivalent of about \$30 a month for a daily download of three dozen photos, which are displayed on their tiny cell phone screens. Corbis CEO Steve Davis says the company envisions a day when American consumers might pay to display the company's photos on programmable plasma screens on their living room walls.)

I have three areas of interest. I have asked for pictures of Italian immigrants arriving at Ellis Island in the 1910s. I am looking for the ship that brought one of my grandfathers to New York. The Ellis Island Immigration Museum's online genealogical archive has a period engraving of the ship, but no photo. Corbis's collection includes pictures from two agencies that made a living by taking photos of everyone who arrived in New York by ship, so it's possible that the archive will have this image.

Second, I'm looking for pictures of labor actions in the New York garment industry during the 1940s and '50s. In particular, I want any picture that exists about a blouse factory called Judy Bond. As a child visiting my New York City grandparents, three of whom worked in the garment trade, I remember seeing mysterious stacks of folded white shopping bags with emphatic blue-black lettering that intoned, "Don't Buy Judy Bond Blouses, Judy Bond Is On Strike."

Finally, and most obscurely of all, I requested any pictures of Italian-immigrant life or railroads in Louisiana in the late 1880s or early '90s. A great-uncle looking for adventure jumped his merchant ship in New Orleans at that time, only to be conscripted into a labor gang laying railroad tracks in the Louisiana interior.

I am shown to a small desk in the front room of the Corbis vault, and a researcher wheels out a large library cart; it is packed with manila folders overflowing with black-and-white prints, about 1,800 pictures maybe, copy prints made by Bettmann's darkroom from the decaying photo negatives now tucked away in the back vault.

I examine pictures for the next several hours. It is pleasant work, but surprisingly tiring, just like touring a museum for an entire day, or eating too much cake. The eye and mind are quickly sated.

The yield is curious. If I don't get exactly what I came for, what I do get is just as compelling, and perhaps more so.

Instead of labor unrest at Judy Bond, I find pictures of powder puff factories on Long Island, garment district strikes being broken up by shiny black police horses in the early 1900s, formally dressed tailors

cutting out vest pockets on long worktables in 1940, and women in tenement living rooms stitching bugle beads onto evening gowns. While I never find the Ellis Island ship, I do get a picture of a woman in a long skirt and Salvation Army bonnet offering a tray of doughnuts to a clutch of new arrivals. Doughnuts? Well, that's interesting. There's probably a Dunkin' Donuts or Krispy Kreme account executive out there who could do something with that. "Give me your tired, your glazed . . ." (The Louisiana line of investigation is less fruitful, or maybe I'm just tired. There are a few folders of pictures of railroad strikes in the South, and auto industry workers picketing on the West Coast.)

The Ellis Island folders are particularly mesmerizing. There are dozens of beautiful portraits and group shots, including one whose scrawled pencil caption reads simply, "Italian Immigrant's Children Arriving Ellis Island, 10/27 1919." The picture shows two small girls in fancy dress who appear to be kneeling on a canvas sail draped over the bow of a lifeboat. They are dressed in immaculate, lace-trimmed linen pinafores and embroidered cotton blouses, still bearing the crease marks from suitcase packing. But their faces are smudged and their hair is in need of combing. The picture looks posed -- the older girl has one arm protectively around her smaller sister and the other raised and pointing somewhere off camera. But the girls' expressions, grave and strangely beatific, transcend the stilted setting.

The photograph is not by Jacob Riis -- it is probably too sentimental to be one of his -- but it is striking, beautiful in its way and, above all, haunting. It leaves the viewer wondering whatever happened to those two girls, what demons their parents hoped to assuage by dressing their daughters in such finery on arrival day, and whether the New World brought the pair a good life.

The folders of the garment industry in the early 1900s are also rich. There are countless makeshift sweatshops in which a dozen or more stitchers, men and women, sit around worktables in the front rooms of tiny tenement apartments, and lean their busy hands toward the windows, straining for light.

Some of these early photographs are candid shots, but most are not. Still, most of the workers do not engage the camera -- they are too busy, or scared of being reprimanded by the boss, perhaps. But in a surprising number of the photos, if you look closely, there is often a single face, usually someone in his or her early twenties, staring right at the photographer, cheekily taking our measure, daring to express an opinion (nonverbally anyway) about this life. In one photo, the rebel is a young woman who holds a scissor blade to her front tooth as she coolly regards the photographer behind the lens. In another, a different girl sits up straight in the midst of her elders, women whose heads are bowed to their work. But she grins at the camera, with an expression that seems to say, "Hey, it's a nice day outside -- let's get out of here!" In another workroom, circa 1900, a small boy sits in the foreground, beside a group of bearded men. He stares at the camera sorrowfully. His face appears to be bruised, and there is a black ring around one eye.

All of these were people who apparently didn't know or didn't care about the rule of the day, which said that the presence of a camera required a certain formality, a certain stiff decorum. Instead, these rebels of the glass plate negative (the highly stable medium that was replaced by cellulose acetate in the 1930s) are full of life and, thus, information about life.

Perhaps this is the real significance of Bill Gates's venture. Stored in subzero temperatures in the Corbis vault, these images, if projections are correct, could be around for the next 5,000 years, or as long as there is someone to keep the electricity going. As the years go by, they will become more and more rare as the other photographs from this era deteriorate and decompose.

Perhaps, as his critics said, there is something imperial in Gates's venture here, some hubris in constructing a permanent monument for one's possessions, and gambling that the rest of the world's failure to do so will make your stash even more valuable in the decades to come. But whether these pictures last 200 years or 5,000, the Corbis legacy here will be exactly opposite that of the Egyptian pharaohs, who buried themselves in tombs full of splendid objects that glorified a ruling elite but left little sense of the daily life of the rest of mankind.

Whether or not this cache ever enriches Bill Gates or his descendants, these 11 million images will be an unsurpassed record of the lives of ordinary people -- immigrants, Bible salesmen, railroad workers, cops, firemen, seamstresses, all the faces in the crowd -- as well as the famous explorer, the politician, the opera singer disembarking from an ocean liner, the general marching off to war. "Einstein Sticking His Tongue Out," yes, but also "New York Construction Workers on Beam."

It is too soon to tell whether Corbis's collection marketed online will sustain the company's far-flung operations. (Corbis CEO Davis says the company is turning a profit now after its long startup but declines to say how much. The company is privately held, and Davis reports to a corporate board of one -- Bill Gates.) It is also too early to know whether the Corbis example will inspire other institutions to move ahead with subzero storage, as Wilhelm hopes. On a recent afternoon at Iron Mountain, however, executives from Universal Studios, which, like most of Hollywood, already has copies of its archives stored at Iron Mountain in medium cool, stopped by to take a tour of the subzero vault. (Wilhelm predicts that eventually large cold-storage vaults will be established in the Arctic.)

And in the end, perhaps profit statements are the least of it. In this fancy, subzero tomb, a mysterious and powerful relic is being made.

"In 500 years, it will be there," says Eastman House's Grant Romer, musing about the Corbis vault. "And in all likelihood, civilization will fall someday, and the mine will be covered with radioactive dust, and 50,000 years from now someone will find it."

At that raising, he says, perhaps people will marvel at this antique 20th-century technology of film and plastic and emulsion, "a kind of black magic" that takes the most transient of things -- time, space and light -- and conjures them up, reconstitutes them, in supremely recognizable form, "summoning up what no longer exists."

When Romer's parents died, he says, someone told him that as long as he could remember them, they would remain alive. But the people and things we love fade from our memories even as we try to hold on to them. Photographs are our bulwark in a sea of ceaseless change, an aid to memory and a proof of the past.

Still, throughout much of the 20th century, people's assumptions about the permanence of their pictures was rather modest; they assumed their photographs would last a little longer than they themselves would -- long enough for their children and maybe even their children's children.

That was then. But now, at the beginning of a new century, in which our box cameras and films, our emulsions and even ourselves have been overtaken by pixels and bits and bytes, we take the longer view. Someday we will be cold and gone, yes, but our pictures -- at least some of them anyway -- will be even colder and still alive.

What would Henry Wilhelm do?

Thinking about the perishability of 20th-century photography might get you thinking about your own photo archive, the stash of snapshots and slides languishing in closets, boxes, damp basements. You might even feel an urge to grab a garden shovel and head for the back yard to begin construction of your own personal Iron Mountain.

Don't do it, says Henry Wilhelm.

Like a physician at a backyard barbecue, Wilhelm, one of the country's leading experts on photo permanence, often finds himself fielding questions from civilians who want to know how to best preserve their pictures.

"Oh yes," he says, "any discussion leads to that right away, and it's a very good question, because personal pictures are historical archives, too."

His advice can be boiled down to two commandments. First, forget about the backyard dirt pit. Even if you could avoid damaging the pictures when you eventually dug them up, the ground is simply too moist. And so is the family food freezer.

Far better, and even more low-tech, is to make sure to have two sets of all important photos, one for display, and one to keep in a dark, dry place. (A closed photo album will do the job just fine.)

Because the stability of color processing has improved dramatically since the 1980s, Wilhelm says, color prints made recently and stored away from light should be in "quite good condition" 100 years from now.

Wilhelm's second commandment is this: If you have the choice (and we do, nowadays), make sure your color pictures are printed on something called Fujicolor Crystal Archive paper, a brand that is readily available at chains like MotoPhoto and Wal-Mart and more specialized stores like Ritz Camera. Both Fuji Crystal Archive and Kodak paper hold up fine stored in the dark (both lasting 100 years), but Fuji is much more stable when exposed to daylight, Wilhelm says.

The superiority and ubiquity of Fuji's Crystal Archive paper are a result of Fuji's decision, 20 years ago, to make a major effort to improve color permanence at a time when Kodak, which had a near 100 percent market monopoly, chose not to do so.

Kodak's decision is now widely recognized as a massive management failure, says Wilhelm, one that gave Fuji an opening to develop and patent materials that it controls to this day. Nowadays, all Fuji paper used in the United States is manufactured here as well, and Wal-Mart, this country's biggest photo-finisher, uses Fuji Crystal Archive paper as a matter of course.

-- M.B.

Mary Battiata is a Magazine staff writer. She will be fielding questions and comments about this article at 1 p.m. Monday on www.washingtonpost.com/liveonline.

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