
Soap
magazine

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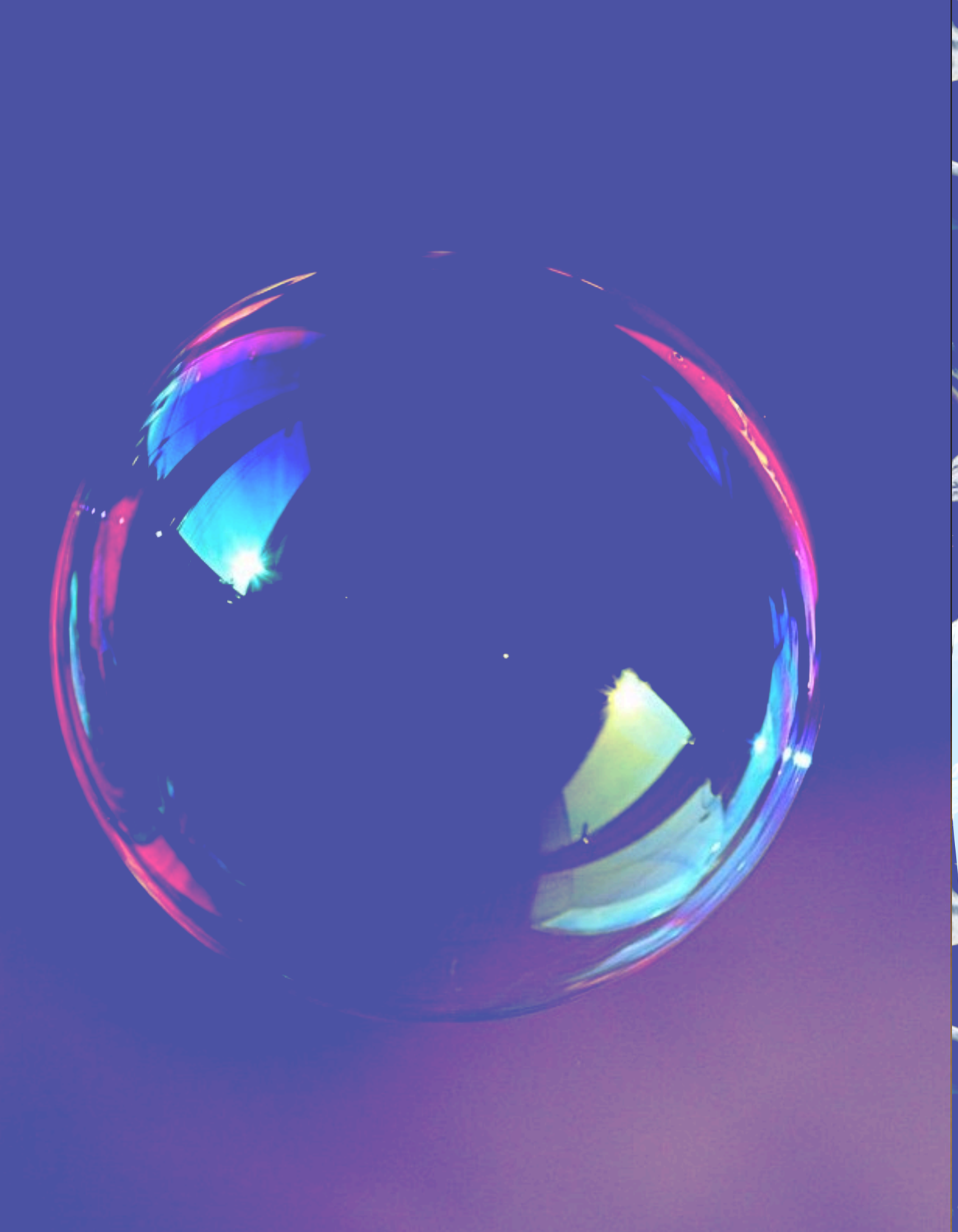


Why Are Soap Bubbles Colored?

The thickness of the film — or rather, its thinness — determines whether iridescence is apparent. Light is reflected from both the inner and outer surface of the soap bubble.

The light rays that are reflected off the inner surface of the bubble travel further than the light rays that are reflected off the outer surface. Some wavelengths will interfere destructively and others constructively, depending on the extra distance traveled by a transmitted-and-reflected ray. Whether the reflected rays are in or out of phase with each other depends on the extra distance (through the film and back) that the second ray must travel before rejoining the first ray. This distance depends on the angle of the incident light and the thickness of the film.

White light is made up of different colors, corresponding to specific wavelengths. As the film thickness changes, the extra distance the ray must travel changes. Interference is constructive when the total extra distance matches a specific wavelength of light, and is destructive when it is half a wavelength. So if white light shines on a bubble, the film reflects light of a specific hue, and this hue changes with the film's thickness.

The iridescence of a soap bubble, which seems to contain a wealth of changing color, stems from light striking the bubble from varied angles. The path length varies with the angle of incident light, giving varying path differences for the internally and externally reflected rays at different points on the bubble. This means that, even if the soap film is of uniform thickness, different colors can be seen. Light entering the bubble directly travels a shorter path than light entering at a wider angle. This allows different wavelengths to undergo constructive and destructive interference, so different colors are perceived.

The colors of a bubble are dependent on the thickness of the film. A bubble becomes thinner and thinner as it dries out (due to evaporation), before finally popping. As the surface film of the bubble becomes increasingly thinner, a change in overall color can be seen. Thick walls cancel out longer wavelengths in the red range. As the bubble film gets thinner, yellow wavelengths are cancelled out. As it gets even thinner, green light is lost. Beyond this point, even shorter wavelengths in the blue wavelength range disappear.

The resulting colors are a combination of the colors that do not undergo destructive interference and their degrees of constructive interference. Blue-green colors dominate in thicker films and yellow hues in thinner films. Eventually, the film becomes too thin to create interference of visible wavelengths, as all wavelengths are cancelled out. At this point the bubble appears colorless. Against a black background the bubble surface could appear black. -

The Great Unwashed

By CATHERINE SAINT LOUIS
The New York Times

A DAILY shower is a deeply ingrained American habit. Most people would no sooner disclose they had not showered in days than admit infidelity. But Jennefer Palmer, 55, of Malibu, Calif., cheerfully acknowledged recently that she doesn't shower or shampoo daily and doesn't use deodorant. Ever.

No, she does not work from home in pajamas. In fact, Ms. Palmer, the chief executive of Osea, an organic skin-care line, often travels to meet business contacts at the five-star luxury hotels where her line is sold. They might be surprised to read that Ms. Palmer, a petite, put-together brunette, showers "no more than three times a week," she said, and less if she hasn't been "working out vigorously."

She contends that a soapy washcloth under her arms, between her legs and under her feet is all she needs to get "really clean." On the go, underarm odor is wiped away with a sliced lemon. Defying a culture of clean that has prevailed at least since the 1940s, a contingent of renegades deliberately forgoes daily bathing and other gold standards of personal hygiene, like frequent shampooing and deodorant use. To the converted, there are many reasons to cleanse less and smell more like yourself. "We don't need to wash the way we did when we were farmers," said Katherine Ashenburg, 65, the author of "The Dirt on Clean: An Unsanitized History." Since the advent of cars and labor-saving machines, she continued, "we have never needed to wash less, and we have never done it more."

"I'm going to sound like dirty Katherine in this article," she said, "but it doesn't matter. I'm still invited to dinner parties."

Retention of the skin's natural oils and water conservation are two reasons Ms. Palmer and others cite for skipping a daily shower. Some have concluded that deodorant is unnecessary after forgetting it once with no social repercussions, or are concerned about antiperspirants containing aluminum, even though both the National Cancer Institute and the Alzheimer's Association don't share those concerns. Shampooing as little as possible can help retain moisture in dry locks and enhance curl shape, argue adherents of the practice; for some men, it's about looking fashionably unkempt.

Resist the urge to recoil at this swath of society: They may be on to something. Of late, researchers have discovered that just as the gut contains good bacteria that help it run more efficiently, so does our skin brim with beneficial germs that we might not want to wash down the drain. "Good bacteria are educating your own skin cells to make your own antibiotics," said Dr. Richard Gallo, chief of the dermatology division at the University of California, San Diego, and "they produce their own antibiotics that kills off bad bacteria."

Some people have long complained that showering too much makes their skin drier or more prone to flare-ups of, say, eczema, and Dr. Gallo said that scientists are just beginning to understand why. "It's not just removing the lipids and oils on your skin that's drying it out," he said. It could be "removing some of the good bacteria that help maintain a healthy balance of skin."

But Elaine Larson, a professor at the Columbia University School of Nursing with a Ph.D. in epidemiology, cautioned that subway riders, gymgoers and others who come into contact with many strangers should consider soaping up. "If it's cold and flu season, you want to get rid of the stuff that isn't a part of your own normal germs," she said.

Whatever the motivation, personal cleanliness in the United States has long been big business. Widespread advertisements address (and arguably generate) anxiety about body odor, from the classic spots ordering consumers to "Raise your hand if you're Sure!" to recent popular commercials with the actor Isaiah Mustafa hawking Old Spice body wash. They seem to work: Adults younger than 24 use deodorant and antiperspirant more than nine times a week, but even for older age groups, usage never falls below an average of once a day, according to Mintel, a market research firm. Ninety-three percent of the country's adults shampoo almost daily, the firm said. Reliable statistics for how often Americans shower are hard to come by, said Regina Corso, a senior vice president of the Harris Poll. "People are going to be hesitant to say they're not showering every day," she said.

But Todd Felix, a clean-cut-looking actor and online producer at Sony who lives in Los Angeles, was happy to report that he finds deodorant unnecessary and antiperspirants absurd. (To his mind, the latter is akin to covering your pores in Saran Wrap.)

To keep his body odor in check, he takes a daily shower with an unscented Dove body wash, usually after the gym. But Mr. Felix, who is in his early 30s and doesn't want to be taken for a hippie, is cautious about disclosing that he doesn't wear underarm protection to people he dates. "When you tell a person you don't wear deodorant, you come across as, 'Oh, how European, how natural, how funky,'" he said.

The few times Mr. Felix has mentioned on a date that he goes without deodorant, he said, things have quickly turned, well, sour. "It's weird, but I don't smell," Mr. Felix will announce. Then, he said, "the comment is always, 'You think you don't smell.'" (Mr. Felix admitted that he lives in horror of having the rare fetid day.) But Matt Merkel, an engineer from Birdsboro, Pa., is sure he smells just fine. How? Recently, Mr. Merkel, 29, told his mother and sister that he gave up the old Speed Stick as a teenager, and they were shocked. "I was like, 'Smell me, I don't care!'" he told them, adding,

thought I was still 13 or 14, and doing that because somebody told me to."

America's custom of rigorous cleanliness was in full swing by World War II, at which point most homes had acquired a full bathroom, said Ms. Ashenburg, the author of "The Dirt on Clean," and intensified with postwar marketing efforts. But standards are relaxing, at least in some corners. An article in Parenting magazine's November issue suggests that stressed mothers need not shower daily, stating reassuringly: "The air is drier in the winter, which means you need your skin's natural lubricants."

More boldly, on a Facebook fan page for the book "Run Like a Mother," a bible for active parents, Bethany Hoffmann Becker, a 32-year-old paralegal from Hutto, Tex., posted this week: "I get a lot of my runs in on my lunch break at work so I am all about the baby wipes :) I just shower before going to bed."

Meanwhile, sales of dry shampoo — a spray used to prolong the time between wet lathers (and perhaps) showers — "more than doubled" from 2007 to 2009, according to the NPD Group, a market research firm.

Recently, the Investment Banking Club board, whose membership is made up of 20 percent of the students at Columbia University's business school, sent a "friendly reminder" of some "personal hygiene basics" to members seeking jobs. One commandment: "Carry anti-perspirant with you if you are worried about sweating."

But some young would-be professionals are blithely unconcerned about sweat or odor. "I don't feel I'm stinkier than the next guy, and I know a lot of people who say the same thing," said Blake Johnson, 25, a law-school applicant who just moved to Norman, Okla. "I never get told I stink. When I tell people I don't wear deodorant, they are surprised to hear it." As if arguing his case in court, Mr. Johnson went on: "When I was working in San Francisco, in an office in the middle of a prestigious law firm, I had to wear a shirt and tie all the time, and I think at some point my boss would have been like, 'There's something I've got to talk to you about ... everybody in the office is noticing.' "

But no "talk" ever happened. Mr. Johnson, an every-other-day bather who resembles the late singer Elliott Smith, also confessed he lets his shaggy hair get oily so he can style it the way he wants. "Right now it's cool to appear like you don't care about what you look like," he said. "You have to invest time, and often money, into making it look like you've done neither, or you can take the easy route, and just don't wash your hair for a week and a half."

John Wesley Wilder Jr., 30, a salesman at an eyeglass store in Philadelphia, is not only a convert to unwashed hair — he shampoos only once a month with Head & Shoulders to reduce frizz, he said — but also to what one might call his personal perfume. "I was getting used to not smelling like Old Spice, and smelling like myself," said Mr. Wilder, who forwent underarm protection for three years. However, this past summer's heat wave forced him to reconsider. "The moment I didn't shower, it was terrible," he said. Now he occasionally uses a natural deodorant.

"It's a little different, but not bad," he said of his experiment, inspired by his concern about the aluminum in antiperspirant, but also by several roommates who went without. This "wasn't a terrible thing," Mr. Wilder said, though, he added with a laugh, "A couple of them definitely should wear deodorant or shower more." Indeed, those who try laissez-faire hygiene need to brace themselves for negative feedback. Tara Freymoyer, 26, a property manager in Birdsboro, gave up underarm protection after she started dating Mr. Merkel, an abstainer. She has friends who "wrinkle their nose and say, 'You're gross.'" But Ms. Freymoyer, who shampoos with Herbal Essences, persists, at least in part because of her fear that antiperspirant may cause cancer. "Just for my pure health," she said, "who cares if I stink a little?"

Alice Feiring, a wine writer in Manhattan, joked that autumn is her "season of nonbathing" (she actually bathes four times weekly.) "'Didn't I bring you up differently?'" she said her mother asks. "'What will people think?'"

But Ms. Feiring, 52, is resolute. "I don't like to over-dry my skin," she said. "It's a myth that people need a deep cleaning everyday." -

Andy Warhol: Brillo Boxes

From the Allen Memorial Art Museum, Oberlin College

More than thirty years after their first exhibition at Stable Gallery (in 1964) in New York, Warhol's Brillo Boxes continue to unsettle museum visitors through their deadpan replication of American commercial culture.1 As part of Warhol's first sculptural project, the Brillo Boxes comment on the commercial framework behind the pristine spaces of the art gallery and art museum, while rubbing the nose of high culture in the mundane disorder of the supermarket stockroom.

Warhol's work of the early 1960s consciously destabilized the distinct domains of high culture and commercial art. His background as a commercial illustrator and his rapid success as a graphic designer and window dresser after his arrival in New York City in 1950 placed Warhol firmly beyond the pale of Greenbergian Modernism's Manichean divide between art and kitsch.2 Robert Rauschenberg and Jasper Johns, both gay artists struggling to escape the machismo posing of the New York School, had opened paths in the late 1950s that had immediate relevance for Warhol. Their critique of the obsessive, autographic practices of Abstract Expressionism in favor of a broad embrace of the detritus of American visual culture--flags, targets, newspaper photographs, and found objects--gave Warhol the impetus to embrace commercial culture as the central source of imagery for his work. The simultaneous emergence of artists like Roy Lichtenstein, Marisol (b. 1930), and James Rosenquist crystalized a new movement, Pop Art, with record speed. Through his adoption of not only the images of commercial culture, but also its organizational and promotional techniques, Warhol soon consolidated his position as the moot Pope of Pop.

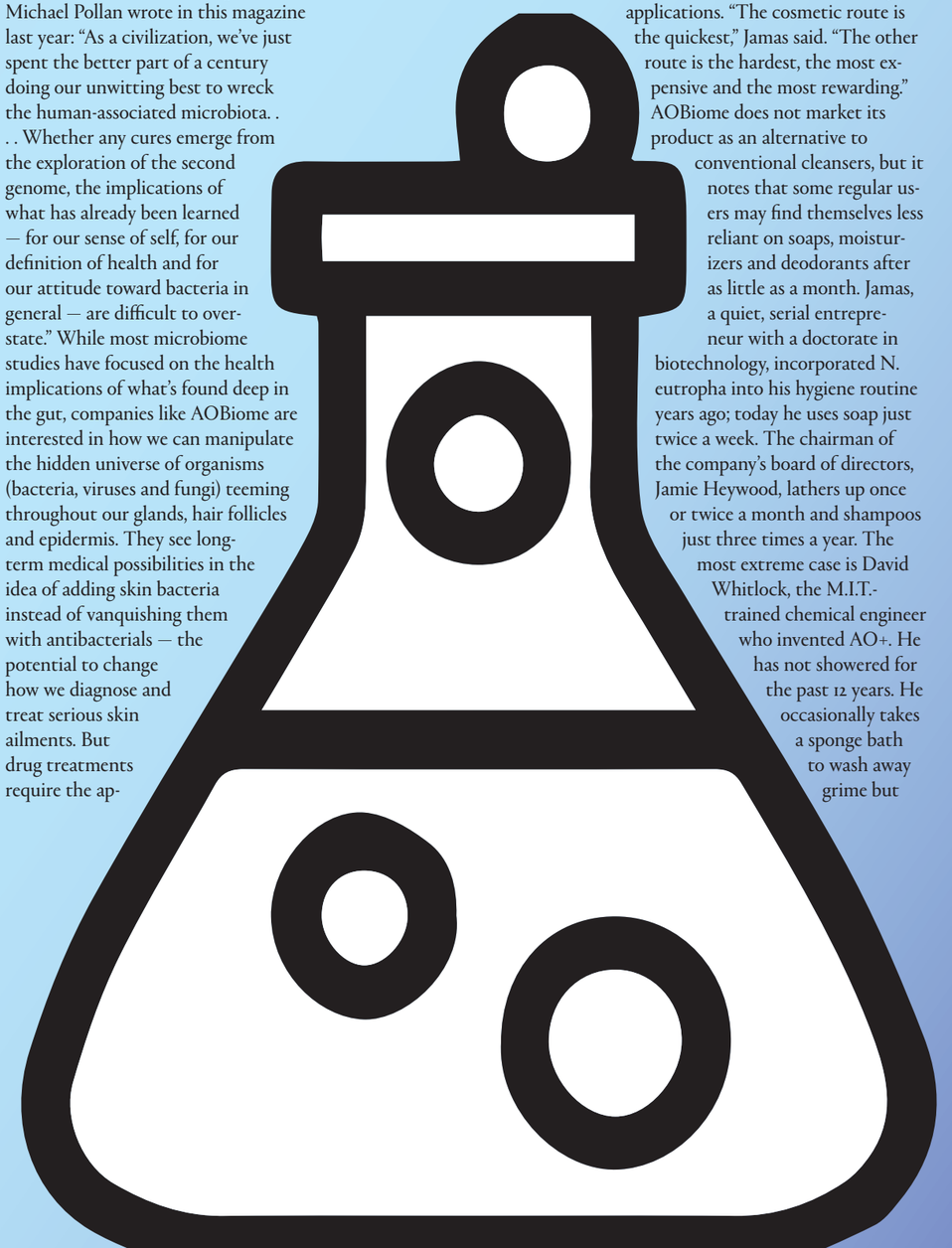
Warhol's commercial art business had accustomed him to the use of assistants and the opportunistic nature of the work-for-hire economic environment. This modus operandi emerged equally in Warhol's studio art practice as well. In 1963 Warhol moved his visual arts operations to a building at 231 East 47th Street in New York, a space dubbed The Factory by Warhol and his growing circle. The Factory, its interior sheathed with silver foil and aluminum paint by Billy Name, one of Warhol's most fanatic assistants during the 1960s, theatricalized the mock-industrial mode of production Warhol had adopted for his paintings and the films he had begun to make earlier that year. The exploitative character of Warhol's enterprise earned him a new nickname amongst his entourage: Drella, a conjunction of Dracula and Cinderella.3 The Brillo Boxes emerged from this heady and ultimately destructive milieu, the setting for what might arguably represent the most potent phase of Warhol's career. This moment was brought to an end by the 1968 murder attempt on the artist by Valerie Solanis, for whom Warhol represented the ultimate white male exploiter. The Brillo Boxes were but one type within a group of replicas of commonplace supermarket packaging--Del Monte Peach Halves, Campbell's Tomato Juice, and Heinz's Ketchup--included in the 1964 Stable Gallery show. Unlike the other "products," however, several types of Brillo boxes were replicated, including a smaller yellow "3 ¢ off" version. Warhol had delegated the selection of the carton prototypes to Nathan Gluck, one of his commercial art assistants,4 but rejected Gluck's campier choices in favor of the most banal examples of supermarket packaging.5 The boxes were fabricated in plywood by an outside manufacturer, and then painted to mimic the models. The lettering and logos were screenprinted on the prepared boxes, replicating the originals with uncanny accuracy. The first group of boxes was screenprinted in The Factory by Warhol and his principal assistant of the '60s, Gerard Malanga,6 the mode of production aping the assembly-line techniques then thought to be the sole paradigm for industrial production. Seldom was the brute act of repetition as evident as in the box project.7 Critics and scholars have long sought to pierce the neutral facade Warhol carefully maintained with regard to the meaning of his work. Does Warhol's artistic practice admit of any critical distance from the images it reproduces? In this regard it is worth noting that the Brillo Boxes represent the only product, among the box sculptures, that is not (processed) food, and the commodity, Brillo, is perhaps the most radically transformed through its presentation. A peach is a peach, whether Del Monte or not. The case of Brillo differs. Brillo is nothing other than steel wool, an industrial product available under a myriad of brand names in any hardware store, a part of the masculine world of car refinishing, boat repair, and industrial labor. Yet the product Brillo belongs to the domestic order, a feminine-gendered space in 1960s America. Steel was no dead metaphor to Warhol, a gay man who came of age in a Pittsburgh still synonymous with the steel industry, a city glowing at night and blackened by day through the action of blast furnaces and smelters. Yet steel, the stuff of I-beams, also becomes wool. Brillo, through simple packaging, transforms steel wool into the perfect housewife's friend, a faithful ally in the never-ending pursuit of shining aluminum cookware. With the Brillo Boxes, Warhol captured the power of advertising at its most alchemical, powerful enough to mutate substance and gender at will. Yet a further twist can be discerned in the Brillo project. The Brillo Boxes are empty, filled with nothing but air, as hollow as the rhetoric so boldly emblazoned upon them. -

My No-Soap, No-Shampoo, Bacteria-Rich Hygiene Experiment

By JULIA SCOTT
The New York Times

For most of my life, if I've thought at all about the bacteria living on my skin, it has been while trying to scrub them away. But recently I spent four weeks rubbing them in. I was Subject 26 in testing a living bacterial skin tonic, developed by AOBiome, a biotech start-up in Cambridge, Mass. The tonic looks, feels and tastes like water, but each spray bottle of AO+ Refreshing Cosmetic Mist contains billions of cultivated Nitrosomonas eutropha, an ammonia-oxidizing bacteria (AOB) that is most commonly found in dirt and untreated water. AOBiome scientists hypothesize that it once lived happily on us too — before we started washing it away with soap and shampoo — acting as a built-in cleanser, deodorant, anti-inflammatory and immune booster by feeding on the ammonia in our sweat and converting it into nitrite and nitric oxide. In the conference room of the cramped offices that the four-person AOBiome team rents at a start-up incubator, Spiros Jamas, the chief executive, handed me a chilled bottle of the solution from the refrigerator.

"These are AOB," he said. "They're very innocuous." Because the N. eutropha are alive, he said, they would need to be kept cold to remain stable. I would be required to mist my face, scalp and body with bacteria twice a day. I would be swabbed every week at a lab, and the samples would be analyzed to detect changes in my invisible microbial community. In the last few years, the microbiome (sometimes referred to as "the second genome") has become a focus for the health conscious and for scientists alike. Studies like the Human Microbiome Project, a national enterprise to sequence bacterial DNA taken from 242 healthy Americans, have tagged 19 of our phyla (groupings of bacteria), each with thousands of distinct species. As Michael Pollan wrote in this magazine last year: "As a civilization, we've just spent the better part of a century doing our unwitting best to wreck the human-associated microbiota. . . . Whether any cures emerge from the exploration of the second genome, the implications of what has already been learned — for our sense of self, for our definition of health and for our attitude toward bacteria in general — are difficult to overstate." While most microbiome studies have focused on the health implications of what's found deep in the gut, companies like AOBiome are interested in how we can manipulate the hidden universe of organisms (bacteria, viruses and fungi) teeming throughout our glands, hair follicles and epidermis. They see long-term medical possibilities in the idea of adding skin bacteria instead of vanquishing them with antibacterials — the potential to change how we diagnose and treat serious skin ailments. But drug treatments require the approval of the Food and Drug Administration, an onerous and expensive process that can take upward of a decade. Instead, AOBiome's founders introduced AO+ under the loosely regulated "cosmetics" umbrella as a way to release their skin tonic quickly. With luck, the sales revenue will help to finance their research into drug applications. "The cosmetic route is the quickest," Jamas said. "The other route is the hardest, the most expensive and the most rewarding."



AOBiome does not market its product as an alternative to conventional cleansers, but it notes that some regular users may find themselves less reliant on soaps, moisturizers and deodorants after as little as a month. Jamas, a quiet, serial entrepreneur with a doctorate in biotechnology, incorporated N. eutropha into his hygiene routine years ago; today he uses soap just twice a week. The chairman of the company's board of directors, Jamie Heywood, lathers up once or twice a month and shampoos just three times a year. The most extreme case is David Whitlock, the M.I.T.-trained chemical engineer who invented AO+. He has not showered for the past 12 years. He occasionally takes a sponge bath to wash away grime but trusts his skin's bacterial colony to do the rest. I met these men. I got close enough to shake their hands, engage in casual conversation and note that they in no way conveyed a sense of being "unclean" in either the visual or olfactory sense.

For my part in the AO+ study, I wanted to see what the bacteria could do quickly, and I wanted to cut down on variables, so I decided to sacrifice my own soaps, shampoo and deodorant while participating. I was determined to grow a garden of my own. The story of AOBiome begins in 2001, in a patch of dirt on the floor of a Boston-area horse stable, where Whitlock was collecting soil samples. A few months before, an equestrienne he was dating asked him to answer a question she had long been curious about: Why did her horse like to roll in the dirt? Whitlock didn't know, but he saw an opportunity to impress.

Whitlock thought about how much horses sweat in the summer. He wondered whether the animals managed their sweat by engaging in dirt bathing. Could there be a kind of "good" bacteria in the dirt that fed off perspiration? He knew there was a class of bacteria that derive their energy from ammonia rather than from carbon and grew convinced that horses (and possibly other mammals that engage in dirt bathing) would be covered in them. "The only way that horses could evolve this behavior was if they had substantial evolutionary benefits from it," he told me.

Whitlock gathered his samples and brought them back to his makeshift home laboratory, where he skimmed off the dirt and grew the bacteria in an ammonia solution (to simulate sweat.) The strain that emerged as the hardiest was indeed an ammonia oxidizer: N. eutropha. Here was one way to test his "clean dirt" theory: Whitlock put the bacteria in water and dumped them onto his head and body.

Some skin bacteria species double every 20 minutes; ammonia-oxidizing bacteria are much slower, doubling only every 10 hours. They are delicate creatures, so Whitlock decided to avoid showering to simulate a pre-soap living condition. "I wasn't sure what would happen," he said, "but I knew it would be good." The bacteria thrived on Whitlock. AO+ was created using bacterial cultures from his skin.

And now the bacteria were on my skin. I had warned my friends and co-workers about my experiment, and while there were plenty of jokes — someone left a stick of deodorant on my desk; people started referring to me as "Teen Spirit" — when I pressed them to sniff me after a few soap-free days, no one could detect a difference. Aside from my increasingly greasy hair, the real changes were invisible. By the end of the week, Jamas was happy to see test results that showed the N. eutropha had begun to settle in, finding a friendly niche within my biome.

AOBiome is not the first company to try to leverage emerging discoveries about the skin microbiome into topical products. The skin-care aisle at my drugstore had a moisturizer with a "probiotic complex," which contains an extract of Lactobacillus, species unknown. Online, companies offer face masks, creams and cleansers, capitalizing on the booming market in probiotic yogurts and nutritional supplements. There is even a "frozen yogurt" body cleanser whose second ingredient is sodium lauryl sulfate, a potent detergent, so you can remove your healthy bacteria just as fast as you can grow them.

Audrey Gueniche, a project director in L'Oréal's research and innovation division, said the recent skin microbiome craze. "has revolutionized the way we study the skin and the results we look for." L'Oréal has patented several bacterial treatments for dry and sensitive skin, including Bifidobacterium longum extract, which it uses in a Lancôme product.

Clinique sells a foundation with Lactobacillus ferment, and its parent company, Estée Lauder, holds a patent for skin application of Lactobacillus plantarum. But it's unclear whether the probiotics in any of these products would actually have any effect on skin: Although a few studies have shown that Lactobacillus may reduce symptoms of eczema when taken orally, it does not live on the skin with any abundance, making it "a curious place to start for a skin probiotic," said Michael Fischbach, a microbiologist at the University of California, San Francisco. Extracts are not alive, so they won't be colonizing anything.

To differentiate their product from others on the market, the makers of AO+ use the term "probiotics" sparingly, preferring instead to refer to "microbiomics." No matter what their marketing approach, at this stage the company is still in the process of defining itself. It doesn't help that the F.D.A. has no regulatory definition for "probiotic" and has never approved such a product for therapeutic use. "The skin microbiome is the wild frontier," Fischbach told me. "We know very little about what goes wrong when things go wrong and whether fixing the bacterial community is going to fix any real problems."

I didn't really grasp how much was yet unknown until I received my skin swab results from Week 2. My overall bacterial landscape was consistent with the majority of Americans': Most of my bacteria fell into the genera Propionibacterium, Corynebacterium and Staphylococcus, which are among the most common groups. (S. epidermidis is one of several Staphylococcus species that reside on the skin without harming it.) But my test results also showed hundreds of unknown bacterial strains that simply haven't been classified yet.

Meanwhile, I began to regret my decision to use AO+ as a replacement for soap and shampoo. People began asking if I'd "done something new" with my hair, which turned a full shade darker for being coated in oil that my scalp wouldn't stop producing. I slept with a towel over my pillow and found myself avoiding parties and public events. Mortified by my body odor, I kept my arms pinned to my sides, unless someone volunteered to smell my armpit. One friend detected the smell of onions. Another caught a whiff of "pleasant pot." When I visited the gym, I followed AOBiome's instructions, misting myself before leaving the house and again when I came home. The results: After letting the spray dry on my skin, I smelled better. Not odorless, but not as bad as I would have ordinarily. And, oddly, my feet didn't smell at all. My skin began to change for the better. It actually became softer and smoother, rather than dry and flaky, as though a sauna's worth of humidity had penetrated my winter-hardened shell. And my complexion, prone to hormone-related breakouts, was clear. For the first time ever, my pores seemed to shrink. As I took my morning "shower" — a three-minute rinse in a bathroom devoid of hygiene products — I remembered all the antibiotics I took as a teenager to quell my acne. How funny it would be if adding bacteria were the answer all along.

Dr. Elizabeth Grice, an assistant professor of dermatology at the University of Pennsylvania who studies the role of microbiota in wound healing and inflammatory skin disease, said she believed that discoveries about the second genome might one day not only revolutionize treatments for acne but also — as AOBiome and its biotech peers hope — help us diagnose and cure disease, heal severe lesions and more. Those with wounds that fail to respond to antibiotics could receive a probiotic cocktail adapted to fight the specific strain of infecting bacteria. Body odor could be altered to repel insects and thereby fight malaria and dengue fever. And eczema and other chronic inflammatory disorders could be ameliorated.

AOBiome says its early research seems to hold promise. In-house lab results show that AOB activates enough acidified nitrite to diminish the dangerous methicillin-resistant Staphylococcus aureus (MRSA.) A regime of concentrated AO+ caused a hundredfold decrease of Propionibacterium acnes, often blamed for acne breakouts. And the company says that diabetic mice with skin wounds heal more quickly after two weeks of treatment with a formulation of AOB.

Soon, AOBiome will file an Investigational New Drug Application with the F.D.A. to request permission to test more concentrated forms of AOB for the treatment of diabetic ulcers and other dermatologic conditions. "It's very, very easy to make a quack therapy; to put together a bunch of biological links to convince someone that something's true," Heywood said. "What would hurt us is trying to sell anything ahead of the data."

As my experiment drew to a close, I found myself reluctant to return to my old routine of daily shampooing and face treatments. A month earlier, I packed all my hygiene products into a cooler and hid it away. On the last day of the experiment, I opened it up, wrinkling my nose at the chemical odor. Almost everything in the cooler was a synthesized liquid surfactant, with lab-manufactured ingredients engineered to smell good and add moisture to replace the oils they washed away. I asked AOBiome which of my products was the biggest threat to the "good" bacteria on my skin. The answer was equivocal: Sodium lauryl sulfate, the first ingredient in many shampoos, may be the deadliest to N. eutropha, but nearly all common liquid cleansers remove at least some of the bacteria. Antibacterial soaps are most likely the worst culprits, but even soaps made with only vegetable oils or animal fats strip the skin of AOB. Bar soaps don't need bacteria-killing preservatives the way liquid soaps do, but they are more concentrated and more alkaline, whereas liquid soaps are often milder and closer to the natural pH of skin. Which is better for our bacteria? "The short answer is, we don't know," said Dr. Larry Weiss, founder of CleanWell, a botanical-cleanser manufacturer. Weiss is helping AOBiome put together a list of "bacteria-safe" cleansers based on lab testing. In the end, I tipped most of my products into the trash and purchased a basic soap and a fragrance-free shampoo with a short list of easily pronounceable ingredients. Then I enjoyed a very long shower, hoping my robust biofilm would hang on tight.

One week after the end of the experiment, though, a final skin swab found almost no evidence of N. eutropha anywhere on my skin. It had taken me a month to coax a new colony of bacteria onto my body. It took me three showers to extirpate it. Billions of bacteria, and they had disappeared as invisibly as they arrived. I had come to think of them as "mine," and yet I had evicted them.

According to Julie Segre, a senior investigator at the National Human Genome Research Institute and a specialist on the skin microbiome, there is a strong correlation between eczema flare-ups and the colonization of Staphylococcus aureus on the skin. Segre told me that scientists don't know what triggers the bacterial bloom. But if an eczema patient could monitor their microbes in real time, they could lessen flare-ups. "Just like someone who has diabetes is checking their blood-sugar levels, a kid who had eczema would be checking their microbial-diversity levels by swabbing their skin," Segre said. -

Why is Soap Made with Fat?

SIMPLY PUT: To make soap you need just three ingredients - some kind of pure fat, water, and lye. The lye chemically turns the fat into soap through a process called saponification. Thats when the triglyceride molecules in the fat bond with the sodium hydroxide molecules (lye) and form 1 new soap molecule and a glycerin molecule. Having the right amount of lye is important. Too much lye and you will have extra left over in your soap when the chemical process is complete - this will mean your soap will have lye in it when it's done curing and it could burn your skin. Too little lye and your soap will have some actual fat left in it and instead of cleaning you, it will just grease you up. Most soap makers add too much fat to their soaps on purpose (a process called superfatting) because having a little extra fat in soap actually makes it feel quite nice. (Science version page 40.)

Procter & Gamble's

Depression Era Soap Carving Contests

by JENNIFER JANE MARSHALL
Jennifer Jane Marshall is acting assistant professor of American art history at Stanford University.

In the 1920s and 1930s, Procter & Gamble popularized the art of soap carving through a series of annual competitions, which explicitly promoted handicraft as a therapeutic alternative to the machine age. However, soap sculpture in fact offered a way to accommodate the changes associated with commercial modernization. A do-it-yourself hobby that relied on mass production, turned the household chore of shaving soap into an art form, and produced compact works of art that reflected the demands of factory production, soap sculpture is an example "antimod-

The craft's many proponents explicitly embraced soap carving for its quaint, almost primitive simplicity and recommended it as nothing less than a therapeutic alternative to the alienating effects of mechanized mass production. However, the fact that the hobby's most vociferous proponent was none other than Procter & Gamble (P&G) hints not too subtly at the sort of commercial accommodations that the art of soap sculpture afforded. Corporate sponsorship, in the form of annual nationwide contests, came with a series of smaller ironies, too. What had once been a tedious aspect of housekeeping—cutting up a bar of soap for use in cleaning—was transformed into an artistic act. And the top prize winners in P&G's contests—creating absolutely unique works of art by hand—were rewarded with the chance to have their pieces cast in bronze or porcelain and reproduced for mail-order sale. Contradiction and irony even suffused soap sculpture's formal aesthetic, which, in accordance with the contemporary ideals of both abstract modernism and Depression-era frugality, centered on the values of simplicity and restraint. Carving's procedural and formal insistence on subtraction thus ventured—simultaneously—a critique and a reinforcement of machine age modernization. Contradicting the assembly line's multiplications and duplications in singular handmade objects, carving ironically also advanced a style perfectly suited to efficient standardization and rationalized reproduction: smooth, plain, compact, and uncomplicated

"America has a philosophy: even leisure must be worthy."

In his influential work No Place of Grace: Antimodernism and the Transformation of American Culture, T. J. Jackson Lears examines how the earnest activities of "antimodernism"—the craft revivals, back-to-nature movements, and primitivist celebrations of the late nineteenth and early twentieth centuries—actually accommodated corporate capitalism by reinforcing its values of individual self-expression and fulfillment. As a hobby that so expressly laid claim to antimodern values, soap carving offers itself to Lears's interpretive rubric, and its internal contradictions would seem further to support it. Moreover, and specifically because it was a hobby, soap carving also aptly illustrates the fundamental inversion at the heart of modern leisure, namely, that the activities used to pass the time off the job so often reinforce the work ethic values that the job requires. Leisure historian Steven Gelber calls this effect "disguised affirmation" and suggests that America's industrious, good-for-you hobbies (from fancywork to furniture building) all amount to so much "ideological spillover," extending the imperatives of the workplace, even while seeming to offer compensatory respite.

Both Lears and Gelber take a sober view of these covert expansions of modernity's governing norms, and indeed soap sculpture seems to offer an especially instructive example of Antonio Gramsci's concept of hegemony. An important model to Lears's analysis (and one devised in response to the same processes of mechanization that provided the backdrop for soap sculpture), hegemony accounts for how dominant ideologies, including corporate capitalism, maintain their dominance by reproducing themselves as the cultural values held dear by society. With its claims to art, beauty, and populist accessibility, soap sculpture discursively operated above the crass concerns of the marketplace and so offered a particularly potent opportunity for unwitting cultural participation in business interests.

However, to the degree that soap carving accommodated many of the cultural forces it appeared to resist, this effect was not so simply a case of corporate villainy or top-down deceit. For one, soap carvers were not so easily duped. They knew the hobby was a marketing stunt (some even submitted entries that directly referenced P&G's advertising themes), and they were likely aware of the compromises that came with the pastime's nostalgic refusal of mechanization. Having to purchase a bar of factory-made soap just to enjoy "actually making an object," in the words of one how-to guide, would certainly have offered an early clue. The fact was that the hobby's many internal contradictions, which so perfectly demonstrate the maneuvering of hegemony, apparently did not interfere with its promise to provide curative respite from the growing pains of modernization, at least not to the thousands of enthusiastic American soap carvers. Instead, the contradictions themselves may well have been the very basis for its curative effects, offering the chance to begrudge modern life, while adjusting to its demands, in a "process of evasion" that Lears describes as "half-conscious" and a matter of "self-deception rather than deliberate duplicity." While perhaps not as spine tingling as the tale of the soap-carving killer, the social art history of this popular American pastime thus has its own twists: a complex web of internal contradictions and ironic inversions spun to deflect and ultimately adjust to the particular challenges of machine age modernization.

Frank Balkovec, The Swabbing Gob,
second quarter of the twentieth century,
Soap sculpture.
Procter & Gamble Archives

In the midst of the Great Depression, one newspaper pundit observed, "Less cash, more leisure and an urge to do something that will endure are a combination that is restoring the arts and crafts to the American home." The dramatic resurgence of do-it-yourself hobbies, well documented by social historians of the period, offered a number of practical benefits to Americans strained by unemployment and anxiety. Not only did hobbies in the workshop or garden pass the time, they also resulted in tangible, usable benefits, like bookshelves and bar stools and carrots and beets. Indeed, many enthusiasts explicitly identified instrumentality as their primary motivation, speaking in terms that fairly substantiate Gelber's thesis of "ideological spillover." One California housewife professed that she had found purpose in the art of hand carving, which put her hands to the "useful" task of making something; another chalked the recent craft renaissance up to "America's philosophy" that "even leisure must be worthy." In the exceptional case of the Depression, however, leisure's "disguised affirmation" of a normative work ethic was far from covert. Leisure very often was work, and the more that pastimes could reinforce traditional values, the better.

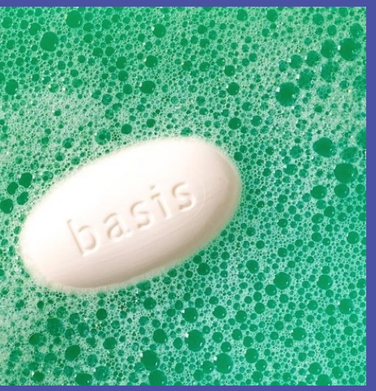
In this climate, hand carving achieved special status. In addition to providing the usual sort of uplift associated with all hobbies, carving was further distinguished both by the durability of its output and by the manual and mental discipline it enforced. In every sense, carving was hard work. The sturdiness of hand-carved objects formally suggested the kind of artistic and moral solidity that crafters tended to associate with the work of making something by hand. In the same vein, carving's practical challenges were said to foster a very specific set of mental and manual skills: skills that emphasized creative thrift and procedural parsimony. Making something through the process of elimination required logical concentration and preparation: envisioning the object and then rationally deducing what had to be stripped away in order to reveal it. Throughout the process, the carver balanced mental labors with manual exertion, and both were ultimately kept in check by the stubborn resilience of the material itself. Assuming an inherent relationship between the carved object and the disciplined mind, many advice columnists of the era promoted carving as a good way to "keep a keen edge on mental abilities" during the search for employment and to banish any of those "job hunters' jitters" in the meantime.

There was some irony to this last endorsement. As the procedural opposite of assembly-line mass production, carving was much more than a hobby: it was the very refusal of just those processes of modernization that many people viewed as the Depression's root cause. The mechanization of American industry, once a source of pride and optimism, had lately become the target of resentment, as the era's new time- and labor-saving devices started to displace blue-collar workers from their manufacturing posts. Economists and cultural critics of the era dubbed this "technological unemployment," an unintended consequence of industrial modernization and one that gave many Americans more free time than they knew what to do with. Indeed, as historian Susan Currell has shown, the early twentieth-century leisure movement centered on the assumption that increased free time was to be a fixture of modern American life and that it was in the country's best interest to manage, control, and even profit from this new surplus of personal downtime. "Overproduction" was the other bogeyman of Depression-era commentary, as experts and laypeople alike indicted the additions and multiplications of assembly-line manufacturing for the market's volatility and collapse. Thus, with carving, hobbyists ironically found a diversion that filled the spare time of technological unemployment while also performing the reversal of its causes: making by hand, instead of by machine, and making one unique thing, instead of millions. -

The Culture Of Clean:

A History Of Artisan Soap Makers

By LAUREN MASS
The New York Times



HERE'S A TRIP DOWN memory lane for you: I remember one Christmas during my preteen years when all really I wanted was Jergens "state of the art" Body Shampoo in my stocking. It came in a plastic box with a blue and white sponge, and the sponge featured a little round well that you were supposed to fill with their newfangled liquid soap. Commercials for the product promised a sexy, saxy future, and I was still wallowing in a world of kid showers: sad bars of soap, and no razors allowed. This breakthrough body shampoo "system" was going to be my gateway to smooth legs and revolutionary, womanly cleanliness, I just knew it. It had to be mine.

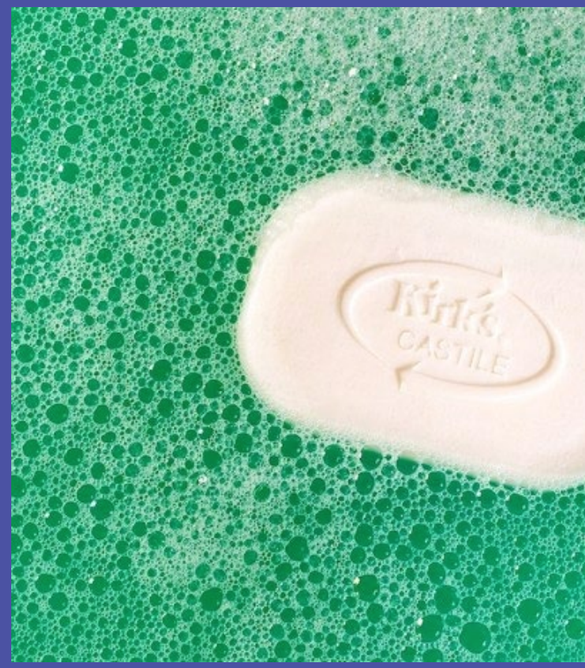
Well, I did get the Jergens and my prediction came true: months after that yuletide acquisition, I embarked on a lifetime of shaving, and many years of liquid body wash loyalty, minus some (or a lot) of the anticipated glamour. My story is not unique; from the early '90s till now, body wash has reigned supreme in the personal hygiene market. It was not until recently, driven partly by thriftiness, partly by half-hearted environmentalism, that I began to revisit the soaps of my youth. I've written about my continent-spanning love for Cleopatra, but bar soap's heritage brands (think Ivory, Dove, Irish Spring) deserve some attention, if not for their effectiveness or ingredients, then at least for their talismanic power.

This series, "The Culture Of Clean," is about the cultural impact of bar soap, not about its pros and cons. Perhaps, 50 years from now, when we're getting clean in our sleep via laser technology, allusions to body wash will flood the literary canon, and shower gel will be sung about in ballads, interpreted on gallery walls.

There was an art to soap-making before people made soap into art. Based on early records, the basic formula has remained the same over time: soap comes from combining either plant oil or animal fat with an alkaline base (a.k.a. lye or sodium hydroxide.) Scent, shape, and quality varied regionally, and by the Middle Ages, buoyed by Silk Road trade, small-scale manufacturers (or guilds) had formed, their products becoming sought after commodities. Most notable of these early soap-makers were those based in Aleppo (now in modern Syria), and Nablus (in Palestine), and later in Castile, Provence, and Marseilles. White Nabulsi soap is known for being pure and unscented; Savon d' Alep is made with olive and laurel oils; Savon de Marseille is infused with salt water from the Mediterranean. Castile soap, once preferred by royalty, now refers to any soap made with a plant-based oil.

Painstaking, beautiful processes are employed to maintain the legacies of such soaps—pouring, cutting, stamping, and curing handled with the utmost care. While the tradition of soap-making has thrived in some of these cities (bricks of Savon de Marseille are familiar imports), it barely survives in others. Sadly, war and sanctions have created near-impossible working conditions for the artisans of Syria and Palestine.

Mass-produced, commercial bar soap began to appear at the beginning of the 19th century. In England, Pears and Yardley of London became household staples. In America, popular brands like Palmolive and Ivory launched advertising campaigns so relentless (and, in their early days, so racist) they earned the product a permanent place in our cultural lexicon (see: -opera, -box, -derby, wash your mouth out with-, don't drop the-, et al.) And it wasn't just in language that these associations grew. Soap has continued to bubble up in film, literature, art, and design. While the grudge match between bar and liquid rages on in supermarkets and drugstores, the bar is clearly where the art's at. -




Poll
utio
ation
soap is dirty

Laundry Detergent: the Effect of Pollution on Lakes and Rivers

Nearly everyone is aware of the effects of pollution: the smog we breathe, the oil fouling our beaches and the mountain of "one-way" containers filling the canyons, all the major ecological problems. As desert residents, however, we have less contact with a problem which has reached gigantic proportions in the lakes and rivers of the East and the Midwest—eutrophication. Many lakes are dead or dying, and they are being killed by our "cleaner than clean" clothes, dishes and homes. California, for its scarcity of lakes, is not immune.

~~Laundry Detergent and the Effect of Pollution~~

In 1965, detergent manufacturers began producing "bio-degradable" products. This changeover eliminated a major pollution eyesore—detergent foam on rivers, but biodegradability is not enough. We must now be concerned with the effects of the elements into which the new biodegradable detergents decompose.

~~Eutrophication~~

When the growth of aquatic plants is overstimulated they seasonally die and rot, using up the oxygen dissolved in the water. Game fish die of oxygen deficiency and are for a time replaced by scavengers. As the plant growth cycle periodically repeats, the lake loses all aesthetic value. Finally the water itself is displaced by the accumulating vegetation and its decay products. The lake first becomes a bog; later dry land. This process occurs naturally as lakes mature, age and die. It has been estimated, however, that the eutrophication which has occurred in the past few decades because of man's pollution would require thousands of years under "natural" conditions.

The availability of plant nutrients controls the rate of algal growth and directly affects the rate of eutrophication. A plant might require 33 units of carbon, ten units of nitrogen and one unit of phosphorus to attain one-unit of growth. If there were 66 units of carbon, and 20 units of nitrogen available, it still could not grow until it found a second unit of phosphorus. Nitrogen is, in general, not the critical growth-limiting nutrient, since blue-green algae can fix nitrogen from the air (air is 80% nitrogen.) Upon death and decay, they may supply enough nitrogen for growth of other kinds of algae. Thus phosphorus, which is not widely available in nature, is the most critical nutrient.

Phosphorus enters the water from many sources; land runoff, soil erosion, waste from animals and plant decay and municipal sewage. The relative contributions of phosphorus from these sources will vary with the watershed. Even if the main source of nutrient phosphorous in rural areas is agricultural runoff, on the average human waste contributes 1.4 pounds per person per year and detergents contribute from 1.5 to 2 pounds of phosphorus per person per year to surface waters. It has been estimated that from 50% to 75% of the phosphorus in lakes and rivers is from detergents. The elimination of this source would bring about an immediate and massive decrease in the rate of eutrophication.

By Judi Anne Turner

Shampoo, Soap, And Toothpaste: The New Water Pollution?

Last week, a study from the University of Minnesota found that increasing amounts of triclosan, an antimicrobial ingredient used in soaps, toothpastes, and even some over-the-counter drugs, were present in lakes across Minnesota. Researchers studied sediment cores from the bottoms of eight different lakes and found that levels of triclosan and its byproducts increased after its release into the market in the 1970s.

When people use shampoo, toothpaste, or soap that contains triclosan, it gets washed into drains and to our wastewater infrastructure. Treatment plants are unable to remove all of the triclosan, and as a result, it can end up in our rivers, lakes, and streams that we use for drinking water supplies.

In the water, triclosan can attach to sediment and accumulate over time, potentially posing a risk to aquatic organisms and plants. When waters contaminated with triclosan are exposed to sunlight, toxic byproducts are released including four types of dioxins, a known carcinogen. Research is ongoing to better understand the effects of triclosan on rivers, streams, and lakes.

The cumulative and long-term impacts of triclosan in our water on our health are not well understood either, although existing data points to troubling results. A report from the Center for Disease Control (CDC) in 2008 found that triclosan is present in the urine of 75 percent of the U.S. population. Multiple studies demonstrate that triclosan can alter hormone levels, causing decreased thyroid function and increased growth of breast cancer cells among other impacts.

While the presence of triclosan in drinking water is not the only pathway of exposure for many people, it could potentially have negative consequences for our health.

On average, women use an estimated 10 to 15 personal care products every day. Unfortunately, triclosan isn't the only chemical in these types of products that may be causing harm to our rivers and streams. Synthetic fragrances have been found to reduce the ability of aquatic organisms to remove toxins and pollutants.

Tiny plastic beads used in exfoliating products collect in waters and can be eaten by marine life. Synthetic chemicals that mimic the hormone estrogen can be found in 57% of personal care products. These types of endocrine disruptors bind to hormone receptors and can cause abnormal responses — from cancer to behavioral changes to reproductive disorders.

The EPA calls these substances 'contaminants of emerging concern' and is working to improve the science and understanding of how personal care products and pharmaceuticals found in our waters impact not just the environment, but our health. Drug take-back programs can help to reduce the number of pharmaceuticals that are improperly disposed in toilets or down the drain. Making informed choices about personal care products is another step that consumers can take to not only protect their health, but to protect our rivers, streams, and lakes.

By Stacey Detwiler

Microbeads In Soaps Facing Bans Due To Great Lakes Pollution

What puts the 'scrub' in facial scrub? Typically, they are tiny plastic microbeads, ranging in size from 0.0004 to 1.24 millimeters. In December 2013, a paper was published in Marine Pollution Bulletin and described how the Great Lakes were choking from this plastic pollution. While Lake Michigan had an average of 17,000 microbeads per square kilometer, some areas of Lake Ontario had as many as 1.1 million beads per square kilometer. How much harm can something so tiny really do? As it turns out, a whole hell of a lot.

Washing your face with something like Clean & Clear's facial scrub can put as many as 330,000 microbeads down the drain per bottle, according to Gizmodo. These particles are much too small to be filtered out by wastewater facilities, so they are just passed along with the cleaned water, which eventually makes its way to lakes. These tiny particles coat the floor of the lake, choking out plant life. Additionally, some creatures mistake them for fish eggs and ingest them. Unable to digest the particles, their gut becomes filled with the plastic until they ultimately starve to death. The small fish who eat the plastic are eaten by progressively larger fish, all of whom begin to accumulate the plastic.

Unfortunately, the plastic alone isn't the only problem. Plastic can act like a sponge for pollutants like motor oils and pesticides. These toxins could work their way into bloodstreams all the way up the food chain, even into the fish eaten by humans.

There may not be too much that can be done about the plastic that is already in the lakes. The microbeads are similar in size to zooplankton, so any efforts to get rid of the plastic would also devastate the base of the food chain. Environmentalists chose to focus on preventing additional plastic from entering the water, and many states began discussing bills that would ban the sale and distribution of soaps, toothpastes, and other products containing microbeads. They expected a long fight, but manufacturers put up little resistance in the measure and were quick to agree to deadlines when they would be phased out.

Unilever, which owns soap companies including St. Ives, Pond's, Noxema, Caress, Dove, Axe, and Suave, has announced plans to completely phase out microbeads from their products by 2015. Though a spokesperson for L'Oreal stated microbeads have "no proven environmental toxicity," the company agreed to begin phasing them out anyway. Colgate-Palmolive, Procter & Gamble, and Johnson & Johnson have all agreed to end their use of microbeads. This isn't entirely altruistic; there are many viable alternatives to plastic microbeads, making it easier to switch than put up a fight.

Compliance from top manufacturers is making it easier on states that have introduced anti-microbead legislation, which would prohibit the sale and distribution of products that have that plastic. Illinois has just passed legislation that requires microbeads to be phased out by 2019. New York's state Assembly unanimously passed a similar bill that would ban microbeads in 2016, though it is awaiting approval from the state senate. California's bill would also prohibit biodegradable microbeads, which is causing more resistance from manufacturers.

Not every facial scrub uses plastic microbeads; many higher end cosmetics use sand, sugar, salts, or diamond crystals. If you currently use a facial scrub containing these plastic particles, think about switching brands until the changes have taken effect. A simple scrub can be made by adding sugar to your regular daily cleanser or by making a paste by mixing coconut oil or honey with lemon juice and sugar.

by Lisa Winter

Environmental Impacts of Detergent

Detergents are cleaning products manufactured from synthetic chemical compounds, as opposed to soap, which originates with natural substances like lye and plant saponins. Detergents figure in an extensive array of industrial and home cleaning applications, including laundry and dishwasher detergents. Released into the flow of wastewater coming from the home, these detergents can have far-reaching environmental impacts.

Phosphate Nutrient Loading

Phosphate-containing detergents can create algae blooms in fresh water. These in turn use up the oxygen available for aquatic life, according to Lenntech, a water treatment facilities corporation affiliated with the Technical University at Delft, the Netherlands. This problem occurs because phosphorous and nitrogen from detergents are nutrients that stimulate excessive growth of algae and other aquatic vegetation, reports the Indiana University News Room. Nutrient loading with phosphates from laundry and dishwasher detergents, as well as from suburban lawn chemicals, can lead to eutrophication, a process by which a freshwater aquatic ecosystem slowly dies due to continual oxygen depletion. Phosphate-containing laundry detergents are banned in most states, and about a half-dozen states have banned phosphate-containing dishwasher detergents as of mid-2010.

Surfactant Toxicity Increase

Surfactants, or surface-active agents, are chemicals that reduce the surface tension of oil and water; in detergents, surfactants help dirt to drop out and stay out of clothing or other items being cleaned. Surfactants in detergents are toxic to aquatic life, persist in the environment and break down into additional toxic byproducts, according to the U.S. Environmental Protection Agency. In a freshwater environment, surfactant-containing detergents break down the protective mucus layer that coats fish, protecting them from parasites and bacteria, according to Lenntech. The reduced surface tension of water also makes it easier for aquatic life to absorb pesticides, phenols and other pollutants in the water. The EPA also advises that surfactants can disrupt the endocrine systems of humans and animals; Lenntech notes that surfactants decrease the breeding rates of aquatic organisms.

Packaging

Laundry and dishwasher detergents come in plastic containers that are generally non-reusable and non-recyclable, according to the EPA. The volume of detergent packaging heading to landfills, given the weekly purchase of detergent-based household products by a significant portion of consumers, creates an enormous environmental impact. The European branch of the International Association for Soaps, Detergents and Maintenance Products announced in 2009 an industry-wide initiative to reduce detergent packaging by manufacturing smaller packages of more concentrated detergent products. American consumers have also noticed smaller laundry and dishwashing detergent packages on their supermarket shelves. The industry association notes that, to be successful, this packaging-reduction strategy will require consumers to carefully read the labels and cut down on the quantity of detergent used; significantly less is required for the same cleaning ability because of the new concentrated formulas.

by Cindy Hill

By ROLAND BARTHES
From Mythologies

Soap-powders and Detergents

The first World Detergent Congress (Paris, September 1954) had the effect of authorizing the world to yield to Omo euphoria: not only do detergents have no harmful effect on the skin, but they can even perhaps save miners from silicosis. These products have been in the last few years the object of such massive advertising that they now belong to a region of French daily life which the various types of psycho-analysis would do well to pay some attention to if they wish to keep up to date. One could then usefully contrast the psycho-analysis of purifying fluids (chlorinated, for example) with that of soap-powders (Lux, Persil) or that of detergents (Omo.)

The relations between the evil and the cure, between dirt and a given product, are very different in each case. Chlorinated fluids, for instance, have always been experienced as a sort of liquid fire, the action of which must be carefully estimated, otherwise the object itself would be affected, 'burnt'. The implicit legend of this type of product rests on the idea of a violent, abrasive modification of matter: the connotations are of a chemical or mutilating type: the product 'kills' the dirt. Powders, on the contrary, are separating agents: their ideal role is to liberate the object from its circumstantial imperfection: dirt is 'forced out' and no longer killed; in the Omo imagery, dirt is a diminutive enemy, stunted and black, which takes to its heels from the fine immaculate linen at the sole threat of the judgment of Omo. Products based on chlorine and ammonia are without doubt the representatives of a kind of absolute fire, a saviour but a blind one. Powders, on the contrary, are selective, they push, they drive dirt through the texture of the object, their function is keeping public order not making war.

This distinction has ethnographic correlatives: the chemical fluid is an extension of the washerwoman's movements when she beats the clothes, while powders rather replace those of the housewife pressing and rolling the washing against a sloping board. But even in the category of powders, one must in addition oppose against advertisements based on psychology those based on psycho-analysis (I use this word without reference to any specific school.) 'Persil Whiteness' for instance, bases its prestige on the evidence of a result; it calls into play vanity, a social concern with appearances, by offering for comparison two objects, one of which is hiter than the other. Advertisements for Omo also indicate the effect of the product (and in superlative fashion, incidentally), but they chiefly reveal its mode of action; in doing so, they involve the consumer in a kind of direct experience of the substance, make him the accomplice of a liberation rather than the mere beneficiary of a result; matter here is endowed with value-bearing states.

Omo uses two of these, which are rather novel in the category of detergents: the deep and the foamy. To say that Omo cleans in depth (see the Cinéma-Publicité advertisement) is to assume that linen is deep, which no one had previously thought, and this unquestionably results in exalting it, by establishing it as an object favourable to those obscure tendencies to enfold and caress which are found in every human body. As for foam, it is well known that it signifies luxury. To begin with, it appears to lack any usefulness; then, its abundant, easy, almost infinite proliferation allows one to suppose there is in the substance from which it issues a vigorous germ, a healthy and powerful essence, a great wealth of active elements in a small original volume. Finally, it gratifies in the consumer a tendency to imagine matter as something airy, with which contact is effected in a mode both light and vertical, which is sought after like that of happiness either in the gustatory category (foie gras, entremets, wines), in that of clothing (muslin, tulle), or that of soaps (film-star in her bath.) Foam can even be the sign of a certain spirituality, inasmuch as the spirit has the reputation of being able to make something out of nothing, a large surface of effects out of a small volume of causes (creams have a very different 'psychoanalytical' meaning, of a soothing kind: they suppress wrinkles, pain, smarting, etc..)

What matters is the art of having disguised the abrasive function of the detergent under the delicious image of a substance at once deep and airy which can govern the molecular order of the material without damaging it. A euphoria, incidentally, which must not make us forget that there is one plane on which Persil and Omo are one and the same: the plane of the Anglo-Dutch trust Unilever. -

Science: How Soap Cleans

Soaps are sodium or potassium fatty acids salts, produced from the hydrolysis of fats in a chemical reaction called saponification. Each soap molecule has a long hydrocarbon chain, sometimes called its 'tail', with a carboxylate 'head'. In water, the sodium or potassium ions float free, leaving a negatively-charged head.Soap is an excellent cleanser because of its ability to act as an emulsifying agent. An emulsifier is capable of dispersing one liquid into another immiscible liquid. This means that while oil (which attracts dirt) doesn't naturally mix with water, soap can suspend oil/dirt in such a way that it can be removed.The organic part of a natural soap is a negatively-charged, polar molecule. Its hydrophilic (water-loving) carboxylate group ($-CO_2$) interacts with water molecules via ion-dipole interactions and hydrogen bonding. The hydrophobic (water-fearing) part of a soap molecule, its long, nonpolar hydrocarbon chain, does not interact with water molecules. The hydrocarbon chains are attracted to each other by dispersion forces and cluster together, forming structures called micelles. In these micelles, the carboxylate groups form a negatively-charged spherical surface, with the hydrocarbon chains inside the sphere. Because they are negatively charged, soap micelles repel each other and remain dispersed in water. Grease and oil are nonpolar and insoluble in water. When soap and soiling oils are mixed, the nonpolar hydrocarbon portion of the micelles break up the nonpolar oil molecules. A different type of micelle then forms, with nonpolar soiling molecules in the center. Thus, grease and oil and the 'dirt' attached to them are caught inside the micelle and can be rinsed away.Although soaps are excellent cleansers, they do have disadvantages. As salts of weak acids, they are converted by mineral acids into free fatty acids:$CH_3(CH_2)_{16}CO_2\text{-}Na^+ + HCl \rightarrow CH_3(CH_2)_{16}CO_2H + Na^+ + Cl^-$These fatty acids are less soluble than the sodium or potassium salts and form a precipitate or soap scum. Because of this, soaps are ineffective in acidic water. Also, soaps form insoluble salts in hard water, such as water containing magnesium, calcium, or iron.2 $CH_3(CH_2)_{16}CO_2\text{-}Na^+ + Mg^{2+} \rightarrow [CH_3(CH_2)_{16}CO_2\text{-}]_2Mg^{2+} + 2\ Na^+$. The insoluble salts form bathtub rings, leave films that reduce hair luster, and gray/roughen textiles after repeated washings. Synthetic detergents, however, may be soluble in both acidic and alkaline solutions and don't form insoluble precipitates in hard water. But that is a different story...

A soap micelle has a hydrophilic head that is in contact with the water and a center of hydrophobic tails, which can be used to isolate grime.

Soapy opened a saloon named Jeff Smith's Parlor (opened in March 1898), as an office from which to run his operations.[1] Although Skagway already had a municipal building, Soapy's saloon became known as "the real city hall."

History: Soapy Smith

Jefferson Randolph "Soapy" Smith II (November 2, 1860 — July 8, 1898) was a con artist, saloon and gambling house proprietor, gangster and crime boss of the nineteenth-century Old West. His most famous scam, the prize package soap sell racket, presented him with the sobriquet of "Soapy," which remained with him to his death.

Although he traveled and operated his confidence swindles all across the western United States, he is most famous for having a major hand in the organized criminal operations of Denver, Colorado; Creede, Colorado; and Skagway, Alaska, from 1879 to 1898. In Denver he ran several saloons, gambling halls, cigar stores, and auction houses that specialized in cheating their clientele. It was in Denver that Soapy began to make a name for himself across the country as a bad man. Denver is also where he entered into the arena of political fixing, where, for favors, he could sway the outcome of city, county, and state elections.

He used the same methods of operation when he settled in the towns of Creede and Skagway, opening businesses with the primary goal of gently robbing his customers, while making a name for himself. He died in spectacular fashion in the shootout on Juneau Wharf in Skagway, Alaska.

Some time in the late 1870s or early 1880s, Smith began duping entire crowds with a ploy the Denver newspapers dubbed "The prize soap racket".

Smith would open his "tripe and keister" (display case on a tripod) on a busy street corner. Piling ordinary soap cakes onto the keister top, he began expounding on their wonders. As he spoke to the growing crowd of curious onlookers, he would pull out his wallet and begin wrapping paper money, ranging from one dollar up to one hundred dollars, around a select few of the bars. He then finished each bar by wrapping plain paper around it to hide the money.

He mixed the money-wrapped packages in with wrapped bars containing no money. He then sold the soap to the crowd for one dollar a cake. A shill planted in the crowd would buy a bar, tear it open, and loudly proclaim that he had won some money, waving it around for all to see. This performance had the desired effect of enticing the sale of the packages. More often than not, victims bought several bars before the sale was completed. Midway through the sale, Smith would announce that the hundred-dollar bill yet remained in the pile, unpurchased. He then would auction off the remaining soap bars to the highest bidders.

Through manipulation and sleight-of-hand, he hid the cakes of soap wrapped with money and replaced them with packages holding no cash. The only money "won" went to shills, members of the gang planted in the crowd pretending to win in order to increase sales.

Smith quickly became known as "Soapy Smith" all across the western United States. He used this swindle for twenty years with great success. The soap sell, along with other scams, helped finance Soapy's criminal operations by paying graft to police, judges, and politicians. He was able to build three major criminal empires: the first in Denver, Colorado (1886—1895); the second in Creede, Colorado (1892); and the third in Skagway, Alaska (1897—1898.)

By the 1950s Smith was sort of a Robin Hood figure, who took from the miners and gave to the poor widows, orphans, dogs, and criminals who lived by their wits. Smith, the anti-hero, was a loyal friend who stood by his men, outwitted the stuffy reformers and conventional citizens and lives on as the rascally King of the Con Men. -

How Soap Operas Got Their Name

By Allie Leeds

How DID soap operas get their name? Why ARE soaps called soaps?While soaps themselves have complicated stories involving romance, betrayal, and dark family secrets, the story behind the term "soap opera" is simple and squeaky clean.In the 1920s, the radio industry desperately wanted advertisers to help increase station ratings and profits. Radio executives managed to convince businesses that sold household goods to sponsor radio shows. To do this, they needed the programming to appeal to the main consumers of household goods. Since most wives and mothers stayed at home, female homemakers fit the bill. Thus, the daytime serial was born.It didn't take long for radio networks to get in on the deal. Procter & Gamble's Oxydol soap powder sponsored a popular daytime serial drama in 1933. Ultimately, Procter & Gamble began to both sponsor and produce the radio shows, which became known as soap operas." In the 1950s and 1960s, many of the first televised soaps were sponsored and produced by Procter & Gamble.The name stuck — and so did the sponsors, for the most part. The Young & the Restless and As the World Turns are still sponsored, in part, by Procter & Gamble, but a much broader array of advertisers now support soaps, for many of the same reasons Procter & Gamble did in the 1930s. In more recent years, Procter & Gamble and other sponsors have begun focusing on how to move soaps online. -

A HISTORY OF SOAP

UNILEVER: BALANCING PROFIT WITH RESPONSIBLE CORPORATE BEHAVIOUR

In the 1890s, William Hesketh Lever, founder of Lever Bros, wrote down his ideas for Sunlight Soap — his revolutionary new product that helped popularise cleanliness and hygiene in Victorian England. It was 'to make cleanliness commonplace; to lessen work for women; to foster health and contribute to personal attractiveness, that life may be more enjoyable and rewarding for the people who use our products'.

This was long before the phrase 'Corporate Mission' had been invented, but these ideas have stayed at the heart of our business. Even if their language — and the notion of only women doing housework — has become outdated. In a history that now crosses three centuries, Unilever's success has been influenced by the major events of the day — economic boom, depression, world wars, changing consumer lifestyles and advances in technology. And throughout we've created products that help people get more out of life — cutting the time spent on household chores, improving nutrition, enabling people to enjoy food and take care of their homes, their clothes and themselves.

In the late 19th century the businesses that would later become Unilever were among the most philanthropic of their time. They set up projects to improve the lot of their workers and created products with a positive social impact, making hygiene and personal care commonplace and improving nutrition through adding vitamins to foods that were already daily staples.

Today, Unilever still believes that success means acting with 'the highest standards of corporate behaviour towards our employees, consumers and the societies and world in which we live'. Over the years we've launched or participated in an ever-growing range of initiatives to source sustainable supplies of raw materials, protect environments, support local communities and much more.
Through this timeline you'll see how our brand portfolio has evolved. At the beginning of the 21st century, our Path to Growth strategy focused us on global high-potential brands and our Vitality mission has taken us into a new phase of development. More than ever, our brands are helping people 'feel good, look good and get more out of life' — a sentiment close to Lord Leverhulme's heart over a hundred years ago.

Building on this heritage, our priorities now are inspiring people to take small everyday actions that can add up to a big difference for the world — from laundry brands that help minimise wasted water and packaging to nutritious, easily prepared and affordable meals -

By UNILEVER
From Unilever.com


. Wet hands


2 Use liquid soap


3 Lather rub and count to 15


4 Rinse


5 Towel or air dr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