

FROM THE EDITOR

Science sells

Charles Day

“Each household appliance/Is like a new science” are lines from the Smiths’ “Nowhere Fast.” Although Morrissey, the band’s singer, wrote the lyrics in 1984 to convey the song’s mood of apathy and boredom, the quoted lines are more apposite to domestic life in early 20th-century America. Then, as more and more homes were connected to an electrical supply, toasters, vacuum cleaners, and other new appliances were manufactured and marketed. To housekeepers of the time, electrical devices could have indeed seemed like a mysterious new science.

On page 50 of this issue, historian of science Joanna Behrman examines a movement, household physics, which emerged in the 1910s to teach women about the science of the new appliances. Not uncoincidentally, household physics also aimed to make women comfortable enough with electricity to buy and use the appliances.

The commercial impetus for household physics came largely from textbook publishers, but General Electric, Westinghouse, and other appliance manufacturers were also involved, most conspicuously in contributing artwork to the textbooks.

Behrman notes that household physics ran out of steam in the late 1940s as the need to contend with a scientifically sophisticated adversary, the Soviet Union, took priority in shaping the teaching of physics and other sciences.

But another cause might have been in play, at least when it came to using science to sell things. The appliance ads sumptuously reproduced in Taschen’s *The Golden Age of Advertising—the 50s* (2001) feature electric cookers, televisions, remote controls, phonographs, refrigerators, and so on. The science and technology behind those devices are absent from the marketing messages. Without exception, the ads stress what the devices can do, not how they work. I speculate that the advertising agencies of the 1950s concluded that science didn’t sell. Explaining how a remote control worked could have been laborious. Far better to tout the wondrous convenience.

The tendency to emphasize the what over the how is perhaps even more prevalent today. When Steve Jobs demon-

strated the first iPhone at MacWorld in 2007, he didn’t mention the capacitive coupling that underlies the phone’s 320 × 480 pixel touch screen. Quite the opposite. He told his audience that the screen “works like magic.”

But there’s one consumer product category

whose manufacturers enthusiastically enlist science to attract customers: cosmetics. Once you’ve removed the packaging, one company’s lipsticks, shampoos, skin creams, and mascaras are indistinguishable from another’s. Perhaps for that reason marketers resort to the science of the ingredients to gain an edge.

One recent example can be found in the March issue of *Marie Claire* magazine. Peter Thomas Roth’s eponymous skincare products company took out a two-page spread to advertise Water Drench, a “lightweight, oil-free moisturizer with a silky soft finish.” The one active ingredient mentioned in the ad is hyaluronic acid, a long, negatively charged polysaccharide. If you read Sabrina Jahn and Jacob Klein’s feature article, “Lubrication of articular cartilage,” in last month’s issue (page 48), you might remember that hyaluronic acid is one of the macromolecules that contributes to cartilage’s slipperiness.

Why put hyaluronic acid in a moisturizer? Because the molecule is highly hygroscopic: A single gram of the material can hold six liters of water in a gel. That water-retention ability is also used for Botox-like antiwrinkling treatments. An article in the *Financial Times*’s weekend magazine featured 11 diverse skincare products.¹

Sometimes ignorance of science is used to sell products. Free radicals in our cells voraciously grab electrons from DNA, LDL and other biomolecules and alter them in detrimental ways. By freely donating electrons, antioxidants such as beta-carotene and vitamin C mitigate the damage. Does that mean that we’ll boost our protection against free radicals by eating foods rich in antioxidants? It sounds plausible, yet no clinical study has found a beneficial effect.² The absence of supporting evidence, though, hasn’t restrained Whole Foods from touting its antioxidant-bearing foods; when I searched the grocer’s website for “antioxidants,” I got 282 hits.

References

1. V. Bentley, “Hyaluronic acid: Skincare’s new It ingredient,” *How to Spend It*, 29 November 2015.
2. The Nutrition Source, “Antioxidants: Beyond the hype” (2018). 



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