

24 | Phyletic Size Decrease in Hershey Bars

THE SOLACE OF MY YOUTH was a miserable concoction of something sweet and gooey, liberally studded with peanuts and surrounded by chocolate—real chocolate, at least. It was called “Whizz” and it cost a nickel. Emblazoned on the wrapper stood its proud motto in rhyme—“the best nickel candy there izz.” Sometime after the war, candy bars went up to six cents for a time, and the motto changed without fanfare—“the best candy bar there izz.” Little did I suspect that an evolutionary process, persistent in direction and constantly accelerating, had commenced.

I am a paleontologist—one of those oddballs who parlayed his childhood fascination for dinosaurs into a career. We search the history of life for repeated patterns, mostly without success. One generality that works more often than it fails is called “Cope’s rule of phyletic size increase.” For reasons yet poorly specified, body size tends to increase fairly steadily within evolutionary lineages. Some have cited general advantages of larger bodies—greater foraging range, higher reproductive output, greater intelligence associated with larger brains. Others claim that founders of long lineages tend to be small, and that increasing size is more a drift away from diminutive stature than a positive achievement of greater bulk.

The opposite phenomenon of gradual size decrease is surpassingly rare. There is a famous foram (a single-celled

marine creature) that got smaller and smaller before disappearing entirely. An extinct, but once major group, the graptolites (floating, colonial marine organisms, perhaps related to vertebrates) began life with a large number of stipes (branches bearing a row of individuals). The number of stipes then declined progressively in several lineages, to eight, four, and two, until finally all surviving graptolites possessed but a single stipe. Then they disappeared. Did they, like the *Incredible Shrinking Man* simply decline to invisibility—for he, having decreased enough to make his final exit through the mesh of a screen in his movie début, must now be down to the size of a muon, but still, I suspect, hanging in there. Or did they snuff it entirely, like the legendary Foo-Bird who coursed in ever smaller circles until he flew up his own you-know-what and disappeared. What would a zero-stiped graptolite look like? In any case, they are no longer part of our world.

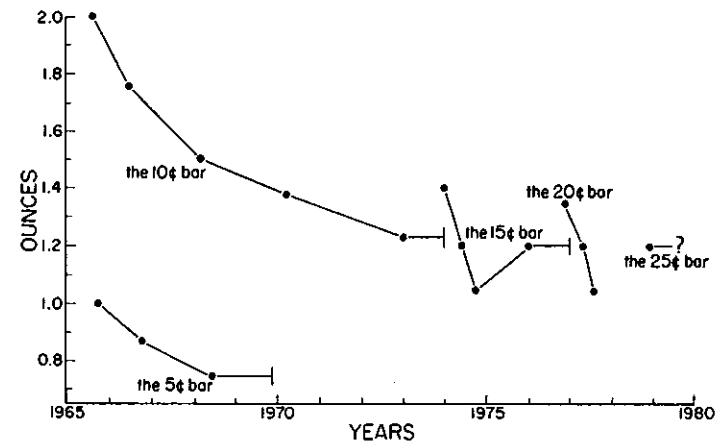
The rarities of nature are often commonplaces of culture; and phyletic size decrease surrounds us in products of human manufacture. Remember the come-on, once emblazoned on the covers of comic books—"52 pages, all comics." And they only cost a dime. And remember when large meant large, rather than the smallest size in a sequence of detergent or cereal boxes going from large to gigantic to enormous.

Consider the Hershey Bar—a most worthy standard bearer for the general phenomenon of phyletic size decrease in manufactured goods. It is the unadvertised symbol of American quality. It shares with Band-Aids, Kleenex, Jell-o and the Fridge that rare distinction of attaching its brand name to the generic product. It has also been shrinking fast.

I have been monitoring informally, and with distress, this process for more than a decade. Obviously, others have followed it as well. The subject has become sufficiently sensitive that an official memo emanated in December 1978 from corporate headquarters at 19 East Chocolate Avenue—in Hershey, Pa. of course. Hershey chose the unmodified hang-out and spilled all the beans, to coin an appropriate

metaphor. This three page document is titled "Remember the nickel bar?" (I do indeed, and ever so fondly, for I started to chomp them avidly in an age of youthful innocence, ever so long before I first heard of the nickel bag.) Hershey defends its shrinking bars and rising prices as a strictly average (or even slightly better than average) response to general inflation. I do not challenge this assertion since I use the bar as a synecdoche for general malaise—as an average, not an egregious, example.

I have constructed the accompanying graph from tabular data in the Hershey memo, including all information from mid-1965 to now. As a paleontologist used to interpreting evolutionary sequences, I spy two general phenomena: gradual phyletic size decrease within each price lineage, and occasional sudden mutation to larger size (and price) following previous decline to dangerous levels. I am utterly innocent of economics, the dismal science. For me, bulls and bears have four legs and are called *Bos taurus* and *Ursus arctos*. But I think I finally understand what an evolutionist would call the "adaptive significance" of inflation. Inflation is a necessary spin-off, or by-product, of a lineage's successful struggle for existence. For this radical explanation of



Hershey Bars bite the dust, a quantitative assessment. GRAPH BY L. MESZOLY.

inflation, you need grant me only one premise—that the manufactured products of culture, as fundamentally unnatural, tend to follow life's course in reverse. If organic lineages obey Cope's rule and increase in size, then manufactured lineages have an equally strong propensity for decreasing in size. Therefore, they either follow the fate of the Foo-Bird and we know them no longer, or they periodically restore themselves by sudden mutation to larger size—and, incidentally, fancier prices.

We may defend this thesis by extrapolating the tendencies of each price lineage on the graph. The nickel bar weighed an ounce in 1949. And it still weighed an ounce (following some temporary dips to $\frac{7}{8}$ oz.) when our story began in September 1965. But it could delay its natural tendency no longer and decline began, to $\frac{7}{8}$ oz. in September 1966 and finally to $\frac{3}{4}$ oz. in May 1968 until its discontinuation on November 24, 1969, a day that will live in infamy. But just as well, for if you extrapolate its average rate of decline ($\frac{1}{4}$ ounce in thirty-two months), it would have become extinct naturally in May 1976. The dime bar followed a similar course, but beginning larger, it held on longer. It went steadily down from 2 oz. in August 1965 to 1.26 oz. in January 1973. It was officially discontinued on January 1, 1974, though I calculate that it would have become extinct on August 17, 1986. The fifteen-cent bar started hopefully at 1.4 oz. in January 1974, but then declined at an alarming rate far in excess of any predecessor. Unexpectedly, it then rallied, displaying the only (though minor) reverse toward larger size within a price lineage since 1965. Nonetheless, it died on December 31, 1976—and why not, for it could only have lasted until December 31, 1988, and who would have paid fifteen cents for a crumb during its dotage? The twenty-cent bar (I do hope I'm not boring you) arose at 1.35 oz. in December 1976 and immediately experienced the most rapid and unreversed decline of any price lineage. It will die on July 15, 1979. The twenty-five-cent bar, now but a few months old, began at 1.2 oz. in December 1978. *Ave atque vale.*

The graph shows another alarming trend. Each time the

Hershey Bar mutates to a new price lineage, it gets larger, but never as large as the founding member of the previous price lineage. The law of phyletic size decrease for manufactured goods must operate across related lineages as well as within them—thus ultimately frustrating the strategy of restoration by mutational jump. The ten-cent bar began at 2 oz. and was still holding firm when our story began in late 1965. The fifteen-cent bar arose at 1.4 oz., the twenty-cent bar at 1.35 oz., and the quarter bar at 1.2 oz. We can also extrapolate this rate of decrease across lineages to its final solution. We have seen a decrease of 0.8 oz. in three steps over thirteen years and four months. At this rate, the remaining four and a half steps will take another twenty years. And that ultimate wonder of wonders, the weightless bar, will be introduced in December 1998. It will cost forty-seven and a half cents.

The publicity people at Hershey's mentioned something about a ten-pound free sample. But I guess I've blown it. Still, I would remind everyone of Mark Twain's comment that there are "lies, damned lies and statistics." And I will say this for the good folks in Hershey, Pa. It's still the same damned good chocolate, what's left of it. A replacement of whole by broken almonds is the only compromise with quality I've noticed, while I shudder to think what the "creme" inside a Devil Dog is made of these days.

Still, I guess I've blown it. Too bad. A ten-pound bar titillates my wildest fancy. It would be as good as the 1949 Joe DiMaggio card that I never got (I don't think there was one in the series). And did I ever end up with a stack of pink bubble gum sheets for the effort. But that's another tale, to be told through false teeth at another time.

Postscript

I wrote this article (as anyone can tell from internal evidence) early in 1979. Since then, two interesting events have occurred. The first matched my predictions with un-

canny accuracy. For the second, that specter of all science, the Great Exception (capital G, capital E), intervened and I have been temporarily foiled. And—as an avid Hershey bar chomper—am I ever glad for it.

The twenty-five cent bar did just about what I said it would. It started at 1.2 oz. in December 1978, where I left it, and then plummeted to 1.05 oz. in March 1980 before becoming extinct in March 1982. But Hershey then added a twist to necessity when it replaced its lamented two-bit bar with the inevitable thirty-cent concoction. Previously, all new introductions had begun (despite their fancier prices) at lower weights than the proud first item of the previous price lineage. (I based my extrapolation to the weightless bar on this pattern.) But, wonder of wonders and salaam to the Great Exception, the thirty-cent bar began at a whopping 1.45 oz., larger than anything we've seen since the ten-cent bar of my long-lost boyhood.

As cynical readers might expect, a tale lies behind this peculiar move. In the *Washington Post* for July 11, 1982 (and with thanks to Ellis Yochelson for sending the article), Randolph E. Bucklin explains all under the title: "Candy Wars: Price Tactic Fails Hershey."

It seems that the good folks at (not on) Mars, manufacturers of Three Musketeers, Snickers, and M & M's, and Hershey's chief competitor, had made the unprecedented move of increasing the size of their quarter bars without raising prices. After a while, they snuck the price up to thirty cents but kept the new size. Hershey tried to hold the line with its shrinking quarter bars. But thousands of mom and pop stores couldn't be bothered charging a quarter for some bars and thirty cents for others (and couldn't remember which were Hershey's and which Mars's anyway)—and therefore charged thirty cents for both Mars's large bars and Hershey's minuscule offerings. Hershey's sales plummeted; finally, they capitulated to Mars's tactics, raising prices to thirty cents and beefing up sizes to Mars's level and above predictions of the natural trend.

As a scientist trained in special pleading, I have a ready explanation for the Great Exception. General trends have

an intrinsic character; they continue when external conditions retain their constancy. An unanticipated and unpredictable catastrophe, like the late Cretaceous asteroid of the next essay, or the sneaky sales tactic of Mars and Co., resets the system, and all bets are off. Still, the greater inevitability prevails. The thirty-cent bar will diminish and restitutions at higher prices will shrink as well. The weightless bar may come a few years later than I predicted (even a bit past the millennium)—but I still bet ya it'll cost about four bits.