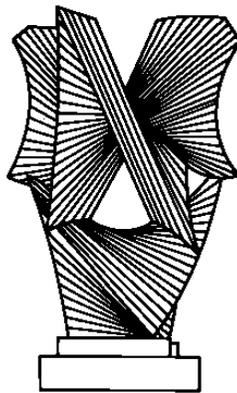


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The Razors-and-Blades Myth(s)

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The Razors-and-Blades Myth(s)

*Randal C. Picker**

In a 1927 article on razor-blade counterfeiters, *Time* magazine stated the obvious: “as everyone knows, safety razor manufacturers derive the bulk of their profit, not from razors, but from the replaceable blades.”¹ And this is just as clear today. In his 2009 business best seller, *Free*, Chris Anderson turns early to the story of King Gillette’s invention: “By selling cheaply to partners who would give away the razors, which were useless by themselves, he was creating demand for disposable blades. ... Gillette made its real profit from the high margin on the blades.”² Anderson closes the book with a coda and returns to Gillette: “Just as King Gillette’s free razors only made sense when paired with expensive blades, so will today’s Web entrepreneurs have to invent not just products that people love but also those that they will pay for.” The razors-and-blades strategy is a simple one: sacrifice returns—maybe even lose money—on the razor handle but make boatloads of profits on the blades. Razor handles are useless without blades and so razor makers had no reason to fear that customers would take free handles and never appear again.

But there turn out to be two central problems with this story: It doesn’t seem to work in theory and it doesn’t match the facts very well. Start with theory. If the razors are actually being sold at a loss—given away for free—then a better strategy seems clear: let

* Copyright © 2010, Randal C. Picker. All Rights Reserved. Paul and Theo Leffmann Professor of Commercial Law, The University of Chicago Law School and Senior Fellow, The Computation Institute of the University of Chicago and Argonne National Laboratory. I thank the Paul H. Leffmann Fund and the Microsoft Fund for their generous research support. I thank Amy Dunathan and Robert Waits for comments. I also thank Lorraine Saxton for able research assistance and Connie Fleischer, Sheri Lewis and Margaret Schilt in the D’Angelo Law Library for helping to track down missing sources.

¹ “Bogus Blades,” *Time*, Sept 12, 1927.

² Chris Anderson, *Free* p11 (Hyperion 2009).

the *other* guy sell the razors at a loss while you sell only the profitable blades. You don't have to lose money on the razors if some other poor sap is willing to do so. Remember the money is in the blades. That suggests that low-prices for razors only make sense if customers are loyal or if the razor producer can block other firms from entering the blade market.

Moreover, giving away free razors doesn't prevent anyone else from playing exactly the same strategy, if that turns out to be the winning one. You can't lock in anyone with a free razor if someone else can give them another free razor. Indeed, all of this suggests just the opposite: if you want to create switching costs through the razor, the razor needs to have a high price, not a low one. High-priced razors mean that consumers face substantial switching costs if the alternative is to buy another high-priced razor. Think of switching from the Xbox to the PlayStation III. In contrast, users of free razors face zero switching costs if the alternative is another free razor. And even a high-priced razor approach to switching costs works only if everyone is playing that strategy: if another competitor is willing to give away its razor, then your customers don't face substantial switching costs.

And you can't lock them in through actual blade use, since once the blades are used, they are gone. The whole premise of razors-and-blades is that you get them to buy more blades after they have disposed of the original blades. Razor blades aren't, to jump ahead in the story, say ebooks or computer macros, where use of the product generates a library that has a going forward value and one that might be forfeited if you switched platforms. You could lose your library of Kindle books if you choose to switch to a B&N Nook and your Lotus 1-2-3 macros are worthless if you want to move to Microsoft Excel. But there is no equivalent razor-blade stock that arises from use: once you have used the razor blades that you have on hand, you can easily switch to the new, free razor provided by an entrant.

The razors-and-blade strategy doesn't seem to work very well unless there is a good way to lock the razor blade—the

aftermarket—to the razor—the platform. That gets us to the second problem, the actual facts. For seventeen years—from 1904 to 1921—Gillette could block other firms from the blade market, or more precisely, the disposable-blades market that Gillette would create. Gillette’s critical 1904 patents covered razors, thin double-edged blades and the combination of the two. The time to play razors-and-blades was during that period, as Gillette knew that it would get the benefits of its first-stage investment in the under-priced razors by selling high-priced blades at the second stage.

But, unfortunately—at least for the razors-and-blades story—the best-available evidence suggests just the opposite. Gillette set an initial price of \$5 for the razor with an initial set of blades and used every available legal means to ensure that its dealers didn’t undercut that price. \$5 was a particularly high price—roughly one-third of the average weekly industrial wage at the time—a premium product like today’s iPod, except even more expensive. Gillette maintained a high price throughout the life of the patents and it was only as the patents were ready to expire that Gillette switched strategies. And Gillette’s profits did jump after it switched strategies and started selling more razors and more blades, suggesting that the expiration of the 1904 patents was actually good news for Gillette and that there was some truth in razors-and-blades, even if that had been lost on Gillette itself during the life of the 1904 patents.

The expiration of the 1904 patents effectively pushed Gillette into playing a version of razors-and-blades and it did so at a point when it no longer had a good legal way to lock entrants out of the compatible blades market, and yet notwithstanding that, Gillette prospered. We seem to have two razors-and-blades myths. The first is that Gillette invented razors-and-blades and gave away or sold low-price handles to sell high-priced blades. Gillette certainly didn’t do that during the life of the 1904 patents and it only did something like that when the patents expired and it was forced to meet the prices of its multi-blade competitors. In some sense, it was Gillette’s multi-blade competitors who invented razors-and-

blades and they did so to separate themselves from the high prices that Gillette charged for razor handles.

Our second razors-and-blades myth is that you can't successfully play razors-and-blades without a way to lock—or tie—the devices together. Standard economics suggests that a firm playing razors-and-blades will face entry into the blades business and that entry will destroy the possibility of subsidizing handles with expensive blades.³ Even though Gillette did have a new handle patent in place after the expiration of the 1904 patents, it didn't for blades and the expected entry came. And yet notwithstanding that—somewhat mysteriously from the distance of today—razors-and-blades seems to have worked even without a way to lock the blade to the razor.

All of this suggests that the actual story of razors-and-blades is more complicated and more interesting than the simple story suggests. This is worth doing on its own, as we should get core examples right, but also important in that platform two-stage products like the cell phone, the iPod and iTunes and the Xbox are pervasive today. The terms of access to those platforms are very much a live legal issue. Should the law facilitate devices, like digital rights management, that control access to the platform? Should we bar exclusive deals for cell-phone handsets? And should we stop Apple from blocking interoperability with the iPod and iTunes?

We should have a firm grasp on razors-and-blades. For this paper, four eras are of interest: (1) the pre-Gillette years, ending in 1903; (2) the original Gillette patent years, from 1904 to 1921; (3) the new Gillette razor (and old Gillette blades), from 1922 to 1929; and (4) the blade format wars and the resulting merger between Gillette and its chief competitor Auto Strop, 1930 to 1931. Gillette could have played razors-and-blades during the patent years, but there seems to be little evidence to suggest that it did so. Gillette of course faced competition from the pre-Gillette

³ Florian Heubrannder, Bernd Skiera & Anja Lambrecht, Time Preferences and the Pricing of Complementary Durables and Consumables (online at <http://ssrn.com/abstract=1444782>), July 6, 2010.

razors and soon faced competition from other multi-blade entrants. And Gillette's power to charge a high price for blades was limited by the willingness of consumers to maintain the blades so as to extend the useful life of the blades. After all, consumers shaving at home had always maintained blades before, so the trick wasn't in getting them to strop, hone and sharpen but rather in getting them to stop doing so.

Gillette first introduced razor give-aways after its 1904 patents expired—the first was with Wrigley gum in 1922—but faced strong limits on pricing its razor blades. Firms could—and, unsurprisingly, did—enter the market for Gillette blades after the 1904 patents expired and that entry should have limited the possible success of playing razors-and-blades. And, with the introduction of the new patented Gillette razors in 1921, Gillette continued to charge a high price for its top-of-the-line razor, suggesting that the low prices and give-aways could easily have been part of a “freemium” strategy.

But that strategy came to an abrupt halt in 1930, the year in which, in some fundamental way, Gillette imploded. Auto Strop, a much smaller competitor led by inventor Henry Gaisman, cleverly wedded patent and trademark law in an effort to lock-in the blade aftermarket for its razor handles and introduced a new blade and blade format that was backwards compatible with the existing stock of Gillette razors. Gillette responded by introducing a new razor, a new blade, a new blade format and a new top price of \$1. But, as the new razor blades themselves made painfully clear—“patents pending”—Gillette had not secured its patent position at the time of the launch, and Gillette immediately found itself on the defensive when Auto Strop filed a patent infringement action alleging that the new razors and blades violated Auto Strop's patents. By the end of 1930, Gillette and Auto Strop were to merge in a shotgun marriage designed to settle the patent litigation, but the Gillette board of directors—and patent portfolio—was remade. The Gillette insiders were swept from the executive committee of the board, and by the end, only one

razorman was on the executive committee, Henry Gaisman, formerly of Auto Strop.

I. A New Technology

What did shaving look like as King Gillette set out to revolutionize it?⁴ Gillette himself dated the conception of his invention to 1895,⁵ so turn to the 1895 Montgomery Ward & Co. catalogue to see a snapshot of the shaving market. Montgomery Ward was the Amazon of its day, a market leader in the mail-order business. Local stores, especially outside of big cities, might offer only a limited selection, but Montgomery Ward promised the world to the entire country. Catalogue No. 57—Spring and Summer, 1895—was a behemoth, running 624 pages and offering more than 25,000 items for sale.

Razors covered one-and-a-half pages of the catalogue and the catalogue started with an admonition: “Our razors are fully warranted by *us*, and if *properly* used and *stropped* on a *good smooth* strop they can be returned at our expense and money refunded or exchanged for another, if not as represented. Many good razors are rendered useless by stropping them on the edge so as to ‘round’ the edge. Lay the razor down flat on the strop, and turn on the back. Never strop a razor by turning with the edge on the strop.” Home-shaving—and remember, many were shaved by professional barbers—was a high-maintenance undertaking and woe to the home-shaver who stropped poorly.

Thirty-six different razors were offered. Thirty-five of these were of the straight razor variety. These differed in the size of the blade, the material in the protective handle, how the blade was ground and more. You could get by spending as little as 60 cents for the Torrey, plain ground 5/8 inch razor or as much as \$3.50 for

⁴ For a detailed look at shaving before the Gillette razor, see Robert K. Waits, *Before Gillette: The Quest for a Safe Razor, Inventors and Patents, 1762-1901* (Lulu Enterprises, Inc., 2009).

⁵ King Camp Gillette, *Origin of the Gillette Razor*, *The Gillette Blade*, Feb 1918, p3.

the Cromwell Criterion razor, German silver lined with a pearl handle.

One razor stood out from the rest, the Star Safety Razor. The Star was a so-called “hoe” razor, and while to the modern eye, the Star looks a little clunky and a bit intimidating, it is an easily-recognizable cousin of the razors that we see today on shelves in drugstores throughout the world. Patented in April, 1887, we are told, the Star was “a great invention which render[ed] shaving an easy and convenient luxury.” The catalogue recognized that the design of the Star was outside of the norm and promised that the Star’s blade could be easily removed and sharpened “as easily as an ordinary razor.” The catalogue offered the Star for \$1.50, an extra blade for \$1, a stropping machine for \$1.75 and strops themselves for 40 cents each. Note the implicit price for the Star handle alone: 50 cents exactly half of the standalone price for the blade itself.

As all of this suggests, the Star’s design was an outlier. The Kampfe Brothers, Frederick and Otto, actually obtained their first U.S. safety-razor patent on June 15, 1880.⁶ The key invention of the patent was the hollow metallic blade holder that served as a lather catcher that captured the shaved whiskers and lather and prevented soiling of the fingers. The patent contemplated that the wedge-shaped razor blade would be inserted into an accompanying

14 *Yale Lit. Advertiser.*

THE STAR SAFETY RAZOR

BEATS EVERYTHING.

A CLOSE SHAVE!
YALE BEAT HARVARD
At Base Ball, Foot Ball and the Boat Race.

The Star Safety Razor
BEATS EVERYTHING.

Verdict of Dr. OLIVER WENDELL HOLMES.
(An extract taken from his late story of "One Hundred Days in Europe.")
"It is pure good will to my razor which leads me to recommend the STAR SAFETY RAZOR to all who travel by boat or sea, as well as to all who stay at home."
Dr. OLIVER WENDELL HOLMES.

The STAR SAFETY RAZOR is for sale by all cutlers and hardware dealers, or will be sent, post paid, for \$2.00 by the makers. Try it, and you will never again use the old style razor. Address
KAMPFE BROTHERS, 8 Rensselaer St., N. Y.

Yale Literary Magazine, June, 1889

⁶ US Patent No 228,904, issued June 15, 1880 (entitled “Safety Razor”).

blade holder for honing and stropping. Ads for the Star made clear that it was to be seen as a new, presumably superior technology. An ad in the advertising supplement to the June, 1889 *Yale Literary Magazine* referenced 13 separate patents in the U.S. and England and offered, to boot, a testimonial from none other than Dr. Oliver Wendell Holmes.

The 1895 catalogue makes clear that self-shavers faced a challenge. Almost all of the razors offered were standard straight razors and poor maintenance of the blade could ruin the razor. This was both a question of time and skill. You could of course have someone else do the sharpening—the Ward’s catalogue offered regrinding services for 35 cents per plain ground razor and 50 cents per hollow ground—but that might mean investing in a second razor, especially if you had to mail your razor to Ward’s in Chicago. The Star razor offered a different design but still required resharpening. And two years later, little had changed. The 1897 Sears, Roebuck catalogue—Cheapest Supply House on Earth—offered much the same selection. The catalogue made clear that Sears believed that its razors were good for either “private or barbers’ use” but otherwise looks familiar: a variety of straight razors, the Star hoe razor—at the same price offered by Ward’s two years before—and assorted shaving paraphernalia.

King Gillette thought that he had a better idea and applied for his patent on December 3, 1901. That application was later divided and, on November 15, 1904, Gillette was awarded two patents, nos. 775,134 and 775,135.⁷ Gillette made clear in the ‘134 patent the difficulties associated with reusable blades:

“My invention is particularly applicable to razors of the safety type, the use of which as heretofore constructed involves considerable amount of trouble, time and expense on the part of the user in keeping the blade sharp, not only for the reason that the blades used in razors of this type require to be stropped and honed frequently, which

⁷ US Patent No 775,134, issued Nov 15, 1904 (entitled “Razor”) and US Patent No 775,135, issued Nov 15, 1904 (entitled “Razor”)

cannot be done satisfactorily by the average individual user himself, but also for the reason that the blades are worn out by honing and having to be replaced at considerable expense.”⁸

Reusable blades had to be re-sharpened and individuals didn’t do a particularly good job of it. They could turn that work over to professionals but that might mean having two razors.

Gillette had a solution for this. The blade in the Star Safety razor was a wedge blade and the blade maintained its shape for cutting through its solid mass. Gillette offered a new approach that would allow him to eliminate a substantial amount of the mass of the blade using a novel holder that would make it possible for a thin blade to remain rigid notwithstanding its loss of mass. Gillette understood precisely what he was accomplishing:

“so that the blades require but a small amount of material and can be ground very quickly and easily, and hence I am able to produce and sell my blades so cheaply that the user may buy them in quantities and throw them away when dull without making the expense as incurred as great as that of keeping the prior blades sharp, and, moreover, will always have the cutting edge of his razor-blade in the same perfect condition is that the new blade.”⁹

Note the tight relationship between the technical invention and the business-model invention. Before Gillette, blades had required a certain bulk to maintain their stability so as to make possible a reliable straight edge for shaving. That bulk necessarily resulted in a high cost for the blade, as more materials went into its construction. A high-cost blade meant that the blade was to be treated as a durable good: It had to be taken care of, perhaps daily stropping at home to maintain the blade edge for shaving and then periodic rehonoring or sharpening by a professional.

⁸ No 775,134, p1, lines 8-19.

⁹ Id at p1, lines 39-49.

Gillette was able to move blade stability out of the blade and into the razor itself. Gillette also moved away from forged steel production to sheet-steel production. Together these changes created the possibility of a disposable blade.¹⁰ Of course, making it cheaply and selling it cheaply aren't the same thing. The patent seemed to contemplate selling cheaply, as would be necessary to induce self-shavers to change their habits. High prices to consumers for new blades would still create a strong incentive for consumers to resharpen the "disposable" blades. Consumers would trade off the price (and quality) of a new blade against the costs—in time and money—of resharpening. The latter costs would impose an upper limit on how much could be charged for replacement blades, even by a monopoly manufacturer such as Gillette. And self-shavers already lived in a world in which blade resharpening was familiar to them.

Indeed, Gillette almost certainly made that easier for them, for this is little doubt that Gillette dramatically reduced the price of a *second* blade. For most straight razors, the only way to get the blade resharpened was to give up temporary possession of the razor to a resharpening shop, though there were a few straight razors with swappable blades.¹¹ That might be done locally or at a distance if, for example, the razor was mailed back to Montgomery Ward. For most straight razors, to have a second blade meant simply to have a second straight razor. For other razors, including both the Star and some straight razors, you could buy a separate second blade but the cost of that blade was significant.

II. A New Business Model

Pricing the razors and the blades presented a standard platform pricing problem, with a few wrinkles. Try a slightly simplified version of the facts to understand the possibilities. Suppose that

¹⁰ William E. Nickerson, The Development of the Gillette Safety Razor: Part I—Mr. Gillette's Invention, *The Gillette Blade*, May, 1918, p4.

¹¹ Kurt Moe, *Interchangeable Blades*, *The Razor Anthology* (Knife World Publications, 1995).

the Gillette Razor lasts for six years and one pack of twelve blades is good for a year of shaves. Gillette contemplates selling the razor with a pack of blades for \$5 and packs of blades for \$1 each. Those were the actual list prices throughout the life of the 1904 patents, though eventually sellers could discount from those prices and did so. But start with list, and at list, a prospective Gillette customer understood that he would pay \$10 for shaving equipment for six years (\$5 for the razor and the bundled pack of blades and five additional packs of blades for \$1 each). Now consider two alternatives: a free razor with blades selling for \$1.67 a pack or a \$10 razor bundled with a lifetime of free blades.

In each case, a customer would pay Gillette \$10 and would use six packs of blades, if—a big if, to be sure—actual blade usage wasn't influenced by the price of the blades. But, under more realistic assumptions, the strategies are actually quite different. A hefty price for the razor itself makes experimentation by customers expensive. A free razor, with perhaps one blade, lets customers test out the razor at no risk. As to the blades, if blade purchases were sensitive to prices, the three strategies are quite different. Presumably customers would use a very large number of blades if they were free, so the \$10 razor strategy seems particularly unattractive. But the free razor strategy suffers from a problem as well, or perhaps two of them. Entrants would naturally target the blades market, if they could do so consistent with Gillette's patents. And, even without entry, shavers might choose to resharpen expensive blades.

Gillette offered its new razor to the public in the October, 1903 edition of *System Magazine*. The razor and twenty blades sold for \$5. That was, according to the ad, a supply of two years worth. Each blade offered two edges and each edge was promised to be good for twenty to thirty shaves. After that, Gillette offered to sharpen a used blade for 2½ cents each or to sell new blades for 5 cents each. Of course, that suggests an implicit price for the razor handle of \$4.

New businesses are constantly experimenting with different business models, and, at least as measured against the modern conception of Gillette's invention, the 1903 version of the business model was quite different. A potential Gillette customer who took the ad at face value had to see three possibilities. After plunking down his \$5, he wouldn't see Gillette for two years. At the point, he could resharpen the blades on his own as he had been doing for years; outsource resharpening to Gillette for 2½ cents per blade; or buy new blades—real disposability—at 5 cents a pop.

But Gillette was feeling its way through the business model. One month later, in its November, 1903 ad in *System Magazine*, Gillette embraced the strategy that would be the centerpiece of its business in the coming years: “No Stropping, No Honing.” Product feature or command? “The user never sharpens” the Gillette Safety razor. Gillette had revised the terms of its offer from one month before: One razor, twelve double-edged blades and “a year of shaving pleasure” all for \$5. Gillette continued to offer to resharpen blades—ten blades for 50 cents—but for the customer, it was “no stropping, no honing.”

No Stropping No Honing

Always Keen

Cut full size
Triple Silver



A dainty toilet article for gentlemen of exclusive and refined taste

The Gillette Safety Razor

The most perfect razor in the world

THE wonderful feature of this razor is that the user *never sharpens it. No stropping, no honing.* Just lather the face, then shave. Result is a beautifully smooth skin without a trace of scratch, cut or irritation, no matter how wiry your beard or how tender the skin—and all done in three minutes.

Twelve double-edge, oil tempered, diamond ground, Damascus blades (equal to twenty-four ordinary blades) with each set.

Price complete in case, triple silver, \$5.00
" " " " solid plate, 12.00

Each blade will give twenty to thirty delightfully easy shaves. A year of shaving pleasure. When you have used ten blades send them to us with fifty cents; we will resharpen and return the same day. You save over \$35 per year in shaving expenses.

Illustrated booklet to any address free for the asking.

Write a letter or send this coupon, inclosing Express or P. O. Money Order. Write name and address plainly.

Cut out and mail to-day.

GILLETTE SALES COMPANY,
1603 3 Manhattan Building, Chicago.

Please send me one Triple Silver Gillette Safety Razor, for which I enclose \$5.00 (Express or P. O. Order). If, at the end of fifteen days, however, I am not satisfied, I will return the razor at your expense, and upon my mere statement of dissatisfaction, you are to return my \$5.00.

Name.....

Address.....

Sy. 2.

Gillette sold 51 razors and 14 dozen razor blades in 1903. By mid-1904, it had settled on the business model and prices that it would use over the life of the 1904 patents: \$5 for a razor, with a pack of 12 blades, with additional packs of 12 blades for \$1. Looked at from the distance of today, the \$5 price is breathtaking. Take one comparison, namely, the prices of other goods. John Wanamaker, the Philadelphia department store entrepreneur, had taken over New York's A.T. Stewart department store and then expanded it in 1902. Wanamaker took out a large ad in the August 18, 1904 *New York Times*. The men's serge suit season was coming to an end and the remaining suits were priced to move: \$15-\$20 suits were offered for \$12. The Fall "costumes" for women season was ready to kick off and new tailored suits started at \$12.50.

In the lower-left hand space, Wanamaker advertised

the new stropless Gillette safety razor. The pitch was simple: self-shaving meant stropping and most men weren't very good at it. The solution was the disposable blade to be "laid aside and a new one substituted" once the original blade was no longer sharp. A new razor, a dozen blades and the right to return that dozen for six new blades, all for \$5. Additional blades were then a \$1 per dozen.

\$5 was a big price, a big number compared to other self-shaving tools and quite large compared to other consumer items, such as men's and women's clothing. The Star hoe-style safety razor sold for \$1.45 and if you knew how to sharpen the blade,

**A Stropless
Safety
Razor**

Most of the trouble the average man has with his razor is due to the fact that he doesn't know how to strop it.

Here's a Safety Razor that eliminates the strop—and men who shave themselves will hail it as a boon.

It is the
Gillette Safety Razor

and its novelty lies in the fact that each blade of the dozen that comes with the razor is to be used as long as it is sharp, then laid aside and a new one substituted. When the twelve blades are used up, you can return them to us, and get half a dozen new blades without extra charge.

After that the new blades cost \$1 a dozen—but the original outfit will give satisfactory service for from six months to a year—and you never need to strop or hone your razor!

In addition, the Gillette Safety Razor is simple to adjust, and will give an admirably close shave with entire freedom from danger of cutting.

Triple silver-plated holder, with one dozen blades, in neat velvet-lined box. \$5.

Cutlery Goods, Main Cross Aisle.

[The New York Times, August 18, 1904](#)

you didn't need to pay another dime.¹² \$5 also amounted to roughly one-third of the average weekly industrial wage in 1900.¹³

III. Competition

Gillette sold 51 razors and 14 dozen razor blades in 1903. In 1904, it sold 91,000 razors and 10,000 dozen blades. And in 1905, 277,000 razors and 99,000 dozen blades.¹⁴ The two key Gillette patents were issued in November, 1904 and would run seventeen years. Before Gillette, razors had been, almost exclusively, single-blade affairs and honing, stropping and resharpening had been required. Gillette suggested a new, multi-blade approach.

For modern eyes, the 1904 Gillette patents are curiously narrow, as they are patents on razors and blades but not patents on business methods. Gillette clearly conceived of the patents as making possible a new business model, namely substituting disposable blades for time-consuming stropping, honing and resharpening. Without the yet-to-be-invented business-method patent, Gillette could block firms from entering into the market for Gillette compatible razors and blades but it could not stop firms from adopting Gillette's strategy and other firms quickly followed that path.

Focus on the precise mechanics of this competition. Gillette certainly had a first-mover advantage in the multi-blade market. Gillette and the new entrants might compete head-to-head to get straight-razor shavers to switch to the new technology, but Gillette customers, at least, presumably weren't at risk to switch to one of Gillette's multi-blade competitors.

Or were they? The pricing strategy for the razors and blades matters for that competition. Take an extreme example: suppose that razors were given away for free and producers planned to

¹² Montgomery Ward, Fall, 1904 catalogue.

¹³ George B. Baldwin, *The Invention of the Modern Safety Razor: A Case Study of Industrial Innovation*, *Explorations in Entrepreneurial History*, Dec 15, 1951, p90 n34.

¹⁴ *Id* at p96.

make money on the blades. This, of course, is the classic characterization of the razors-and-blades strategy. In this hypo, a Gillette customer would receive a free razor and would buy an initial pack of blades. Once all of those blades had been used, the Gillette man could reup by buying another pack of blades. But he could instead grab a free razor from a Gillette competitor and buy the corresponding blades from that producer.

Free or low-cost razors don't create real switching costs for customers and don't lock in customers. The strategic problem with genuinely disposable products is that they are disposable. Once the blades were gone, they were gone. The razor handle itself wasn't disposable but could be made disposable at the right price, such as if the razor handle were free. Razor blades are quite different from many of their modern platform counterparts. Video games are durables. An Xbox customer can't easily switch over to a new game system from Sony, even if Sony offered the game box for free. Switching means forfeiting the installed base of Xbox games. This isn't a sunk-cost fallacy: the games are genuine usable assets that bring a functionality to the Xbox customer and that wouldn't be available on the competing platform, at least not without spending money to buy new games for the new platform. And, of course, while game platforms are often sold below cost, they aren't free and the need to purchase a new platform discourages switching as well.

Gillette routinely advertised its razor handle plus 12 double-edged blades for \$5.00. Additional blades were offered 12 for \$1.00, though Gillette briefly—and profitlessly—flirted with blades at 10 for 50 cents.¹⁵ Indeed, to jump forward in time, a 1913 Sears catalog makes crystal clear how serious Gillette was about its pricing. That catalog offered five pages on razors and assorted products “for barbers and private use” though it is clear

¹⁵ Russell Adams describes this in his wonderful Gillette biography. See Russell Adams, *King C. Gillette 90* (Little Brown, 1978). Adams also quotes a 1906 company memo on the role of the blades in Gillette's business: “The greatest feature of the business is the almost endless chain of blade consumption, each razor sold paying tribute to the company as long as the user lives.”

that some of the offerings were directed primarily to the professional barbers market. Every item came with a textual description and a detailed drawing, save one. There was no drawing of the Gillette Safety Razor. Instead the catalog offered up an explanation and an apology:

“Gillette Safety Razors are quoted for the accommodation of some of our customers who want this particular razor. We don’t claim that this razor will give better satisfaction than the lower priced safety razors quoted on this page. This razor is manufactured and sold under a license priced of \$5.00; and we are therefore prevented from offering it at a price consistent with the prices and values we quote on other makes and styles of safety razors.”

The razor, a dozen blades and a leather case sold for \$5.00 and six additional blades could be purchased for the price of 45 cents. The catalog concluded that Sears did “not exchange old blades.”¹⁶

But if what Gillette really hoped to invent was disposability, he certainly didn’t patent it and his company quickly faced entrants in the multi-blade market. The American Safety Razor Company sold the Ever-Ready brand and in a 1906 ad offered the razor and seven single-edge blades for \$1.00. Ever-Ready suggested that the blades could be

McCLURE'S MAGAZINE

Razor-7 Blades

EVER-READY
Safety
Razor-Set
Complete \$1.00

It's a \$5.00 "Safety"

We've dared to fix a retail price that meant a "square deal." Ever-Ready Safety Razor Sets are complete at \$1.00. Seven perfect blades—a nickel silver safety frame and stripping handle, all compact in a handsome box.

We have manufactured Safety Razors under other brands during the past 21 years, and the Ever-Ready is the best that skill, workmanship and experience can produce at any price. Ever-Ready Seven-bladed dollar razors are now on sale in thousands of cutlery, hardware, jewelry and department stores throughout the world.

If your dealer doesn't sell them it is because he's profit greedy. If you have the least difficulty in purchasing, send us direct (one dollar) and you will receive your set, prepaid, booklet free.

THE AMERICAN SAFETY RAZOR CO., 293 Broadway, New York

McClure's Magazine, 1906

stopped like ordinary blade and would last for years. But a new set of blades could be purchased for 75 cents

¹⁶ And Adams describes the efforts Gillette took to use the legal system to maintain the \$5 price. See id at p57-58.

and old blades could be swapped for new blades for 25 cents. It is hard to know of course whether the blades received back were actually new blades or just resharpened old blades but even if that were the case, it would mean that shavers were able to outsource blade sharpening conveniently and at a modest price. Sears was offering the Ever-Ready set—razor handle, seven blades and holder for stropping—for 94 cents, a 6% discount from the price listed in the Ever-Ready ads. Sears made clear that customers could maintain the Ever-Ready blades but if that was too complex an undertaking, Sears stood ready to sell a dozen new replacement blades for 75 cents.¹⁷

The Gem Cutlery Co. had long produced the Gem Razor, a wedge-blade hoe safety razor similar to the Kampfe Star Safety Razor. But in 1906, Gem offered the Gem Junior as a direct competitor to the Gillette approach. The Gem Junior came with a razor, seven blades—one for each day of the week—and a separate stropping handle all for \$1.00.¹⁸ Gem also offered to exchange old blades for new ones for 25 cents: “Shaving will therefore cost you next to nothing.”¹⁹ The exchange program—“new blades for old”—figured prominently in Gem Junior ads.²⁰

There were other competitors as well, but as this suggests briefly, Gillette’s business model—both its actual business model and its supposed razors-and-blades model—faced real competition and strong limits. The Ever-Ready and Gem Junior razor handles were implicitly priced at a very low price. Straight-blade shavers could try the new multi-blade approach with a minimal upfront investment and Gillette shavers could switch easily if Gillette blade prices were too high. If disposability was really valuable, shavers could get it from Gillette but they could also get it elsewhere and

¹⁷ Sears Catalogue No 116, Fall, 1906.

¹⁸ American Druggist and Pharmaceutical Record, Volume XLVIII, Jan-June, 1906.

¹⁹ Appleton’s Magazine, Volume IX, Jan-June, 1907, p802

²⁰ McClure’s Magazine, Volume 29, 1907.

at a far lower price. And Gillette's ability to exploit its installed base of razor handles turned in part on the switching costs its customers faced. Ever-Ready, Gem and the other multi-blade competitors made those switching costs very low. Indeed, from 1908 forward, Sears offered one or more multi-blade sets—a handle with an initial stock of blades—for less than a \$1.00 and did so over the life of the original Gillette patents. Of course, it is impossible to assess quality from the pages of the Sears catalogues, but disposability was available at prices substantially below Gillette's razor handle price.

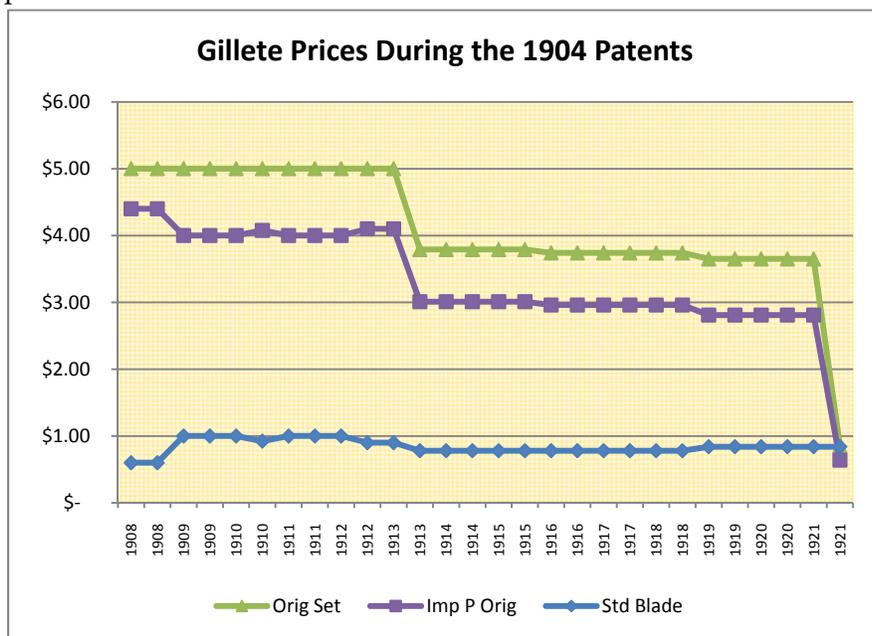
The supposed razors-and-blades strategy faced another important limit: blades that worked in many different handles. In 1913, Sears offered Superior Safety Razor blades for 49 cents a dozen and those blades fit Superior, Ever-Ready, Star, Gem Junior and other safety razors. A freestanding wedge blade was also offered—the Comfort—for a price of 60 cents each. The Comfort blade was designed for razors such as the Star and the Gem that used a forged concave blade.²¹ Ever-Ready and Gem would be hard pressed to play razors-and-blades with their razor handle customers if customers could easily buy compatible blades. That in turn would put more pressure on Gillette so long as Ever-Ready, Gem and others sold low-priced handles. Gillette was competing with low-priced handles coupled with a competitive blades market.²²

Gillette maintained an advertised list price of \$5.00 for its standard set—razor handle, a packet of blades and case—during the life of the 1904 patents. Gillette started high and continued high during the life of the patents. Of course, list prices are just that, but the Sears catalogues offer a sense of actual selling prices. Sears produced two catalogues a year and started selling the Gillette razor in 1908. Sears sold the Gillette set and separate

²¹ Sears Catalogue No. 126, Copyright 1913, p959-963.

²² Gillette had even faced direct competition in the Gillette blades market proper but had successfully asserted its patent against the entrant. See *Clark Blade & Razor Co. v. Gillette Safety Razor Co.*, 194 F 421 (3rd Cir 1912).

packets of blades and from those we can calculate the implicit price of the handle alone. Sears sold at the list price through the first half of 1913, where, as you will recall, Sears was apologizing for being forced to charge list. That changed in the second half of 1913, as the standard \$5.00 price was discounted to \$3.79 and the apology had vanished. Whether this was *Dr. Miles*²³ finally working its way through the system isn't clear, but even at the discount, the Gillette was still a premium-priced razor and Gillette maintained that position until it reached the end of the 1904 patents.



IV. The End of the 1904 Patents: New Patent, New Business Model

Gillette received his original patents on November 15, 1904, which meant that, with a 17-year patent term, the patents were due to

²³ *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 US 373 (1911). Mark Lemley suggested this possibility at a workshop on the paper and I confess that I had had the same question.

expire in November, 1921. Gillette's decisive advantage conferred by the patents would then come to an end. Gillette faced two potential problems: entry into the market for the old Gillette razor handle and entry into the market for Gillette-style blades. Entrants, at least those with the technical wherewithal, could choose to invade the razor market, the blade market or both. Pricing strategies which rely on low prices for one good tied to high prices for a second, related good are particularly at risk for piecemeal entrance. Don't enter the market with low prices, just enter the market with high prices.

Gillette obviously understood all of this and had an aggressive plan to deal with it. Patents have been very, very good for Gillette and the obvious solution to the expiration of the foundational 1904 patents was new patents. Six months before the expiration of the 1904 patents, Gillette started running ads announcing a new technology, a new patent and a new razor. In a large ad in *The Wall Street Journal* on May 17, 1921 Gillette announced "another triumph of American invention, the new improved Gillette safety razor, patented January 13, 1920." The old Gillette razor was modestly described as the "first great advance in the Art of shaving in 5000 years" but it was "now superseded." The new razor promised an increase in shaving efficiency—left unspecified exactly—of more than 75%. The razor was offered in silver and gold shaving sets starting at standard price of \$5. Gillette hadn't sold the old razor for a low price and would continue to sell the new razor at a high price.

There was also a brief note at the bottom of the ad addressing the use of Gillette blades: "The Gillette Company assumes full responsibility for the service of Gillette Blades when used in any *genuine* Gillette Razor—either old type or New Improved Gillette. But with imitations of the genuine it Gillette cannot take responsibility for service of Blades." This is interesting and, again, as measured against the standard razors-and-blades story, a little surprising. The note suggests that Gillette was concerned about entry in the razor market with the fear that customers would use

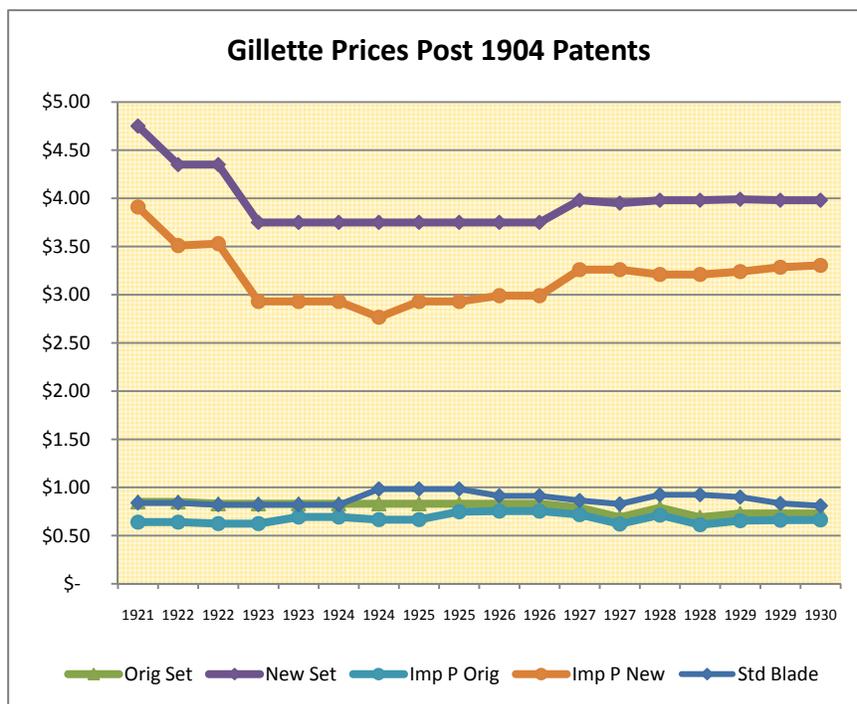
genuine Gillette blades in non-Gillette razors. If you are losing money on razors to sell high-priced blades, this is good news. The razor entrants would expand the installed base of customers for Gillette blades and would do so on someone else's dime. Gillette should have been delighted with virtually any use of the blades, including in competing razors. Now mixed use—one firm's razors, a second firm's blades—is always a little tricky for assigning quality. Perhaps Gillette feared that its blades would be blamed for bad shaves using inferior razors and therefore saw the limitation as an attempt to protect the reputation of its blades.

But the 1920 patent was just a patent on the razor and unlike the 1904 patents it was not a patent on the underlying blades. While Gillette was offering a new razor technology, it didn't have new blades. But Gillette did more—much more—than invent a new razor. Gillette understood that with the expiration of patents competitors could offer the old Gillette razor and presumably would do so at lower prices. If customers still wanted to buy the old Gillette, Gillette would sell it to them as well and now at a much lower price. Gillette repackaged its old razor as the Brownie and sold it at an advertised list price of \$1. In its Fall 1921 catalogue—just before the expiration of the 1904 patents—Sears offered the Brownie set—the old-style Gillette razor handle, three blades and a case—for 85 cents. Comparable sets from Ever-Ready and Gem sold for 88 cents. Gillette's old razor faced the possibility of entry and Gillette made that much less attractive by dropping the price of the old razor to the price of the preexisting multi-blade competition.

Take stock of how razors-and-blades is doing so far. Gillette maintained a high price for the original Gillette razor throughout the life of the patents. Once the 1904 patents expired, Gillette finally dropped the price of the handle but Gillette also offered a new handle at a very high price. Gillette was seemingly still a long way from embracing a free-razors strategy. Gillette smartly didn't just hand over the market in the old Gillette model to companies that could enter with the expiration of the 1904 patents but instead

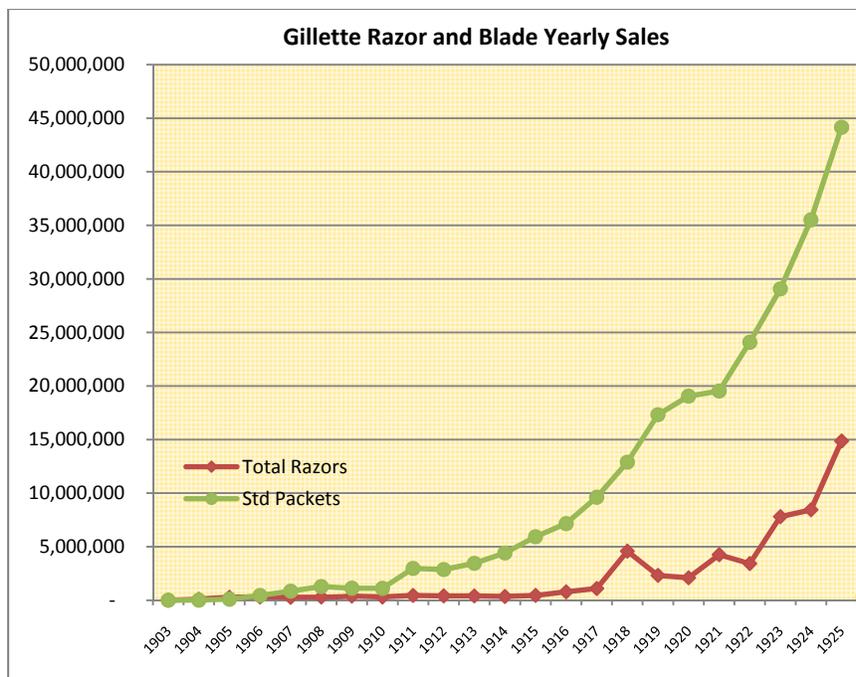
beat them to the punch by offering the old Gillette itself at a competitive price.

Gillette was now pricing a product line in razors. I suspect that Gillette assumed that most of the customers for the new Gillette razor would be preexisting Gillette customers, that is, existing customers who would be upgrading. If that is right, Gillette was already selling them razor blades and wouldn't make any more money from additional blade sales. Instead, for those customers, Gillette would maximize its returns from them by setting a high price for the new razor. As to the old razor at the new price, Gillette now looks like it was playing something more like a "freemium" strategy rather than a classic razors-and-blades play. As Gillette gained new customers at its now much lower price point, Gillette had to hope that some of those customers would eventually upgrade to the new Gillette razor.



Gillette launched this program six months prior to the expiration of the 1904 patents, that is six months before entrants could compete. On November 15, 1921—the day of the expiration of 1904 patents—Gillette took out a large ad in the *New York Times* to announce “the commercial romance of 1921.” As the ad put it, “you may often hear it said that ‘the way this new Gillette is going over reads like a romance.’” Really? Really? But Gillette said it sold 1 million of the new improved razors, 600,000 in the United States and 400,000 elsewhere. Gillette had a second shift of production at its Gillette factory. Again at the bottom of the ad Gillette said a word about the blades “Gillette deems it proper to ask the public to use Gillette Blades *only* in *genuine* Gillette Razors. The Gillette Blade and Gillette Razor are developed to *work together*. No Gillette Blade can deliver its full shaving quality unless used in a *genuine* Gillette Razor—built by Gillette, in the Gillette way and up to Gillette standards.”

The 1921 Gillette Annual report laid out the numbers very simply. In 1920, Gillette had sold 2,090,616 razor sets and 19,051,268 extra blade sets. The 1920 figures were the first recent annual sales figures not to include extra sales to the government, as Gillette had sold large numbers of razors and blades to the United States military in World War I. Compared to 1920, the 1921 figures were dazzling: 4,248,069 razor sets and 19,531,861 extra blade sets. Roughly the same number of extra blades, but more than double the number of razor sets. The reduced prices on the old Gillette reached “a class of purchasers who were not potential possibilities for the NEW IMPROVED.” Those were understood to be new Gillette customers and future blade purchasers. And the new Gillette razor had sold remarkably well and had done so at the standard \$5 price for a razor and set of blades.



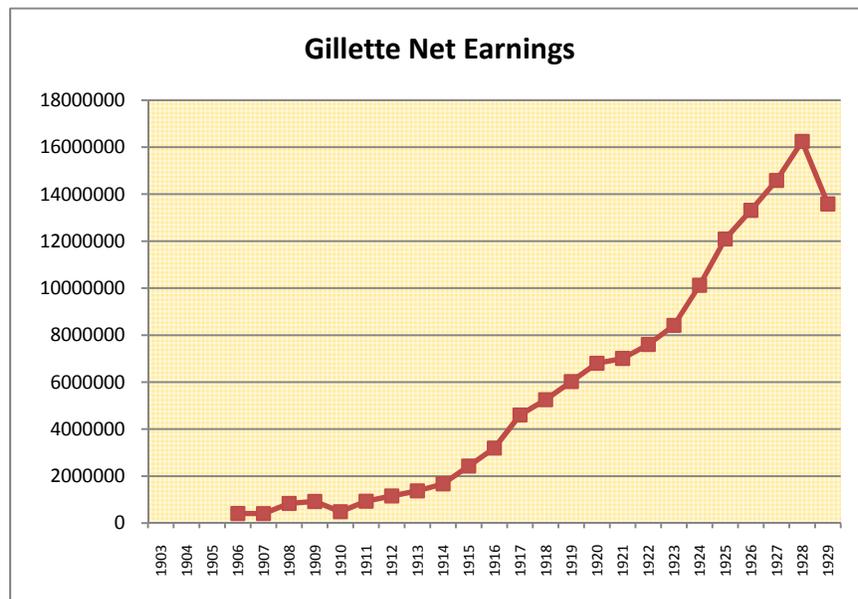
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The Brownie sales suggest that Gillette's prior price for the original Gillette razors had excluded large number of potential Gillette customers. Far from giving away razors to sell blades at high prices, Gillette had sacrificed potential razor blade sales by selling razors at a premium price. Gillette preferred to sell high-priced razors and fewer blades to selling cheaper razors and more blades. Gillette didn't try to segment the razor handle market until it was forced to do so by the threat of entry at the expiration of the patents.

Ultimately, Gillette's razor blade sales were tied directly to the size of its installed base of Gillette compatible handles and the rate of use Gillette blades. Gillette's installed base jumped dramatically with sales to the government during World War I and then again with the introduction of the two-tier product strategy with the

²⁴ Gillette appears to have stopped reporting direct handle and blades sales after 1925.

expiration of the 1904 patents. Razor blades sales, in turn, presumably were driven by customer maintenance choices; Gillette prices; and the emergence of competition in Gillette compatible blades. Sears started selling compatible blades in 1925 and by 1929 was offering four brands of compatible blades (Fax, Radium, Rubie and Sta-Sharp).²⁵ Yet even if those blades took away some customers, Gillette's own sales jumped dramatically, as did Gillette's earnings.



We have reached the end of the second stage of Gillette's life. The first stage is defined by the life of the 1904 patents. The second starts six months before the expiration of those patents when Gillette launched its new freemium razor handle approach, selling the low-priced Brownie in competition with the other

²⁵ More information about these blades can be found in Phillip L. Krumholz, *Collector's Guide to American Razor Blades* (1995) and Dale Justus, *The Illustrated Compendium of "Made in U.S.A." Razor Blades* (2010 ed.).

multi-blade sellers and continuing to sell a high-end handle at its traditional \$5.00 list price backed by its new patents.

Gillette doesn't play razors-and-blades under the 1904 patents. It set a high-price for the handle and largely stuck to it though IT was forced to allow some discounting around 1914. That lowered the implicit price of the handle from roughly \$4 to roughly \$3, a substantial drop, but still a relatively high price. Gillette sales—both of handles and of blades—jumped dramatically with its new two-product approach in 1921 and profits jumped as well. Gillette kept blade prices firm during this transition, though it did effectively raise prices in 1924 when it kept its list price of \$1 per packet but reduced the number of blades from 12 to 10. All of this pushed Gillette towards something closer to a razors-and-blades strategy though one that reflected Gillette's two razors. Gillette may have concluded that it would sell roughly the same number of blades to Brownie users and new Gillette users, so it may as well maintain a high-price for the new model to extract as much from them as possible at that point.

What is just as interesting is the way in which being forced into something closer to razors-and-blades seemingly benefited Gillette and did so notwithstanding the—at least on paper—problems with that strategy. Gillette's ability to exploit its growing installed base of Gillette handles should have been limited by the emergence of a market for Gillette compatible blades. After the expiration of the 1904 patents, other firms could make Gillette-style blades and while that seemed to happen slowly, it did indeed happen. Again, without a way to lock in customers, Gillette shouldn't have expected to charge high prices for blades and get away with it. Yet there seems to be little doubt that after the expiration of the 1904 patents, Gillette offered a much lower-priced handle; sales soared and blade sales followed, even in the face of compatible blade competition, and profits rose. This is the second of the razors-and-blades myths, namely, that a producer will find it almost impossible to play razors-and-blades without a way to lock the consumable goods to the platform. Gillette no

longer had that lock after the 1904 patents expired in 1921 and yet the strategy it was pulled towards unwillingly worked. Whether that was consumer habit or the superior quality of the Gillette blades or something else is something we can't divine from the catalogues.²⁶

V. Format Wars and the End of Gillette's Pricing Strategy (and the End of Gillette?)

Almost against its will, with the expiration of the 1904 patents, Gillette had been dragged into a different business strategy and one that had turned out to be quite profitable. That was the case notwithstanding the readily-predictable emergence of Gillette-compatible blades. Life seemingly was good.

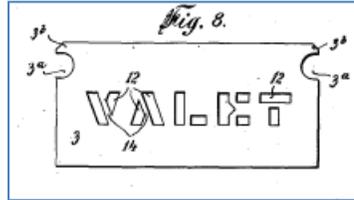
Yet by the end of 1930, Gillette was dramatically different. Yes, this was the midst of the Depression but the changes to Gillette were much more specific to it. Its long-standing practice of charging \$5.00 for its newest razor-and-blade set was gone and Gillette itself had undergone a shot-gun merger with a much smaller rival, Auto-Strop. When the winds of change finally stopped, King Gillette was gone and Henry Gaisman of Auto-Strop had taken over the joined entity.

Auto-Strop was a long-time competitor of Gillette, though much smaller, and one with a distinctive business strategy. As sold in the Sears catalogue, "[t]he Auto Strop razor is the only razor that sharpens its own blades. It is a safety razor and stropping machine combine in one."²⁷ Razor blade sharpeners were relatively expensive—the well-known Twinplex for Gillette sold for \$2.09 in 1927—and Auto Strop was unusual in selling a bundled product (hence, the "auto" in the name, short for automatic stropping).

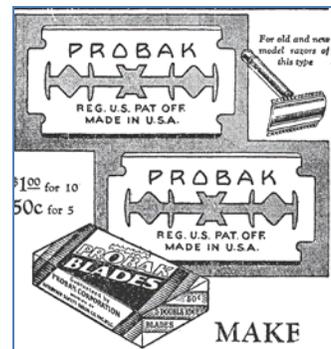
²⁶ Harmann and Nair calculate what they label a "psychological switching cost"—a version of habit—in the modern razors and blades market and find little evidence to suggest that these costs are important. See Wesley R. Hartmann & Harikesh S. Nair, Retail Competition and the Dynamics of Demand for Tied Goods, 29 *Marketing Sci* 366, 382 (2010).

²⁷ 1927 Sears Catalogue, p.528.

But it wasn't the bundle that overturned Gillette, but rather a new patented approach to razor blades. In a series of patents, Gaisman of Auto Strop had focused on how the razor blades were locked to the safety razor itself. One of the patents clearly attempted to interweave patent and trademark law in the way in which it turned the trademark name Valet into the locking mechanism for the blade.²⁸



A second blade, the Probak, took a different approach. The new Probak blades fit the Gillette razors—they were backwards compatible—and fit Auto Strop's new razor handles, but—clearly by design—Gillette blades were incompatible with the new Auto Strop handles. From a distance, it is a little hard to see why this was seen as such a great innovation in the blade business. Gaisman had offered to sell the invention to Gillette in 1926 but had been turned down.²⁹ But Autostrop moved forward on its own to launch the new Probak blades in 1929 and the new “butterfly channel” blades must have had a strong appeal. Gillette felt compelled to respond and, in early 1930, Gillette launched a new razor and a new blade.



Every aspect of that launch seems shocking. While Gillette offered expensive deluxe models, the new razor, case and a new blade were offered for \$1. Gillette's high-price strategy began in 1904 and continued through the life of the 1904 patents and through the introduction of the new Gillette razor in 1921, but in early 1930, it vanished. Moreover, Gillette introduced new blades without having received a patent on them. As the blades

²⁸ US Patent No 1,639,335. Issued Aug 16, 1927 (entitled “Blade Holder”).

²⁹ See Russell Adams, King C. Gillette 147 (Little Brown, 1978).

themselves made clear, Gillette's patents were—to be optimistic—pending. Gillette's blades preserved the three-hole design of prior Gillette razors and blades and then added a new wrinkle to attempt to make the blades compatible only with the new Gillette razors. The format wars were upon us.

Yet, in six months, the war was basically over and Auto Strop had won. Auto Strop brought a patent lawsuit in federal court in Delaware on April 3, 1903 seeking an injunction against Gillette's sale of the new razors and blades. By mid-October, Gillette announced that it was purchasing Auto Strop to bring an end to the patent litigation.³⁰ But notwithstanding Gillette's



size, contemporary observers understood that Auto Strop had the upper hand.³¹ And they were right: in short order, King Gillette was no longer president of Gillette. A new president had been brought in and Henry Gaisman stood at the top of Gillette as chair of its executive committee.

VI. Conclusion

The razors-and-blades story offers a foundational understanding of a key area of economics and strategy: Invest in an installed base by selling the razor handles at low prices or even giving them away, then sell the razor blades at high prices to justify the prior investment. Large chunks of modern technological life—from VCRs and DVD players to video game systems like the Xbox and now ebook readers—seem to operate subject to the same dynamics of razors and blades.

At least on the paper, the competitive dynamics of this situation are straightforward and well understood. If you actually give away the handle to create the installed base, you need to

³⁰ Gillette to Obtain Auto Strop Razor, *The New York Times*, October 16, 1930.

³¹ *The Economist*, October 11, 1930, p677.

recapture those loses in the blade sales. And if you are selling blades above cost, you need to be able to tie the blades to your handle or you should expect entry in the blades business to compete on the base that you have installed.

That is at least the theory. The actual facts of the dawn of the disposable razor blades market are quite confounding. Gillette's 1904 patents gave it the power to block entry into the installed base of handles that it would create. While other firms could and did enter the multi-blade market with their own handles and blades, no one could produce Gillette handles or blades during the life of the patents.

From 1904-1921, Gillette could have played razors-and-blades—low-price or free handles and expensive blades—but it did not do so. Gillette set a high price for its handle—high as measured by the price of competing razors and the prices of other contemporaneous goods—and fought to maintain those high prices during the life of the patents. For whatever it is worth, the firm understood to have invented razors-and-blades as a business strategy did not play that strategy at the point that it was best situated to do so.

It was at the point of the expiration of the 1904 patents that Gillette started to play something like razors-and-blades, though the actual facts are much more interesting than that. Before the expiration of the 1904 patents, the multi-blade market was segmented, with Gillette occupying the high end with razor sets listing at \$5.00 and other brands such as Ever-Ready and Gem Junior occupying the low-end with sets listing at \$1.00.

Given Gillette's high handle prices, it had to fear entry in handles, but it had a solution to that entry: it dropped its handle prices to match those of its multi-blade competitors. And Gillette simultaneously introduced a new patented razor handle sold at its traditional high price point. Gillette was now selling a product line, with the old-style Gillette priced to compete at the low-end and the new Gillette occupying the high end. Gillette foreclosed

low-end entry by doing it itself and yet it also offered an upgrade path with the new handle.

But what of the blades? Gillette's pricing strategy for blades showed a remarkable stickiness, indeed, sticky doesn't begin to capture it. By 1909, the Gillette list price for a dozen blades was \$1 and Gillette maintained that price until 1924, though there clearly was discounting off of list as Sears sold for around 80 cents during most of that time. In 1924, Gillette reduced the number of blades from 12 to 10 and maintained the \$1.00 list price, so a real price jump if not a nominal one. That was Gillette's blade pricing strategy.

It is hard to know what to say about that strategy. If Gillette had finally understood razors-and-blades they might have coupled their new low-end razor with higher blade prices and the two changes coincide roughly. But the other event, of course, was the expiration of the 1904 blade patents and eventual entry of Gillette blade competitors. That should have pushed blade prices down and made it difficult for Gillette to play razors-and-blades. Indeed, even with the drop from 12 to 10 blades, by 1930, Sears was selling genuine Gillette blades for the price it had been selling them prior to the packet reduction.

And all of that gets us to the final irony. No razors-and-blades during the years of 1904 patents. With the expiration of the patents, Gillette no longer had a way to tie the blades to the handles and thus, at least on paper, seemed to have no good way to play razors-and-blades. Yet with sale of razor sets to the U.S. government during World War I and the jump in handle sales with the introduction of the low-price old-style handle, Gillette's installed based jumped rapidly and the profits followed.

And that leaves a hole in the analysis. Gillette hadn't played razors-and-blades when it could have during the life of the 1904 patents and didn't seem well situated to do so after their expiration, but it was exactly at that point that Gillette played something like razors-and-blades and that was when it made the most money. Razors-and-blades seems to have worked at the point where the

theory suggests that it shouldn't have. Why is that? Did Gillette succeed because of quality or were their powerful even-if-hard-to-discern-now locks—psychological or otherwise—between the razors and the blades?

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