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MAKING ROOM FOR RUBBERS: GENDER, TECHNOLOGY, AND BIRTH CONTROL BEFORE THE PILL

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Before the Food and Drug Administration approved in 1960 the distribution of oral contraceptives, the most popular form of birth control in the United States was the condom. Scholars have often downplayed men's involvement in the history of birth control, relegating knowledge and use of contraceptive technology to a separate "female domain." This article explores the role of condoms in the evolution of the American birth control business, attitudes toward public health, and everyday sexual behavior, and suggests why the full complexities of the history of birth control are best captured by an approach that is attentive to broad gender dynamics as well as to the diversity of technological change.

Keywords: Sexuality; Gender; Women's history; Condoms; Contraceptives; Business

In an era that witnessed the birth of the internal combustion engine and the telephone, Irish playwright George Bernard Shaw declared rubber condoms "the greatest invention of the nineteenth century."[1] Shaw's observations raise two questions of vital importance to the history of technology and birth control. When is technological change important enough to merit the attention of historians? And how do historians' assessments of what counts as important affect our framing of the past?

Historians of modern birth control have not always provided the sensitive accounting of technological change that Shaw, for one, would

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have liked. Much of this has to do with the methodological and theoretical moorings of the historiography of contraception. In the 1970s and 1980s, social historians and historians of women produced a spate of articles and books that cast contraception as an integral part of the history of sexuality, family, religion, social regulation, and private behavior. Above all, the work of James Reed, David Kennedy, and especially Linda Gordon made room—as few histories had—for a serious discussion of women as historical actors. Here was a history replete with women working openly and covertly, together and alone, but always struggling to "create the conditions of their lives in their own interest."[2]

It was no accident that many of these studies embraced the methodology and politics of the separate spheres paradigm. In the 1960s and 1970s, women's historians had insisted that women were missing from the pages of history books not because they were insignificant but because scholars had devalued their contributions and failed to look in the right places to find examples of their agency. In its attempts to unearth this previously hidden female domain, women's history claimed as its starting point the centrality of a domestic sphere isolated from the public male world, a realm bounded by home, friends, kin, and the many reproductive rituals—pregnancy, childbirth, abortion—only a woman could know. Contraception fit easily into this model, and historians of women and birth control found plenty of evidence in the records of medical clinics, birth control organizations, and women's letters and diaries to bolster the claim that pregnancy prevention was a vital part of an understudied female world.[3]

It was politically important for scholars to emphasize the role of women as owners of a long culture of contraception. In the 1970s, when many of these studies were written, the feminist health movement was in full swing in the United States. It challenged the expertise and sexism of a predominantly male medical establishment, critically evaluated the power of the pharmaceutical industry to push drugs and devices on women, and called for a grassroots movement to enable women to make informed and independent medical choices. First published in 1971 by the Boston Women's Health Book Collective, *Our Bodies, Ourselves* extolled the authority women had once had as managers of their reproductive health and urged women to reclaim this tradition. Many historians echoed this sentiment, underscoring the female and pre-industrial origins of birth control. In her magnificent *Woman's Body, Woman's Right*, first published in 1976, Gordon told readers that "Modern medicine [has done] almost

nothing, until the last twenty years, to improve on birth control devices that were literally more than a millennium old. . .Birth control was not invented by scientists or doctors, it was invented by women." Celebrating this deeply rooted female culture, historians downplayed the contributions men had made as makers and users of birth control and discounted the significance of technological upgrades to birth control prior to the invention of the Pill. It was if, in the long history of contraceptive technology, only the invention of a once-a-day oral contraceptive properly counted as new. As Gordon put it, birth control in America has been an "issue of politics, not of technology."[4]

A welcome by-product of this chronological packaging of birth control history has been the attention scholars have given the Pill, whose development in the 1950s and widespread diffusion in the 1960s ostensibly ended a long period of stagnation in contraceptive innovation. In the last 6 years alone, three new books on the history of oral contraceptives have been published.[5] There is no need to dispute the impact of the Pill on women, sexual behavior, and medical practice. It was, indeed, revolutionary, and the attention it has received is deserved. Nor is there a need to discount the myriad contributions of historians of women or their determination to make women subjects, for there is still plenty of work that needs to be done. I do want to suggest, however, that the full complexities of the history of birth control are best captured by an approach that is attentive to broad gender dynamics as well as to the diversity of technological change. Modifications to old contraceptive devices that today might appear minor were regarded as revolutionary by those who experienced them firsthand. Such was the case with the invention of diaphragms that contained springs and the development of second generation IUDS made of malleable plastic instead of metal. And it was certainly the case with condoms created from rubber, which first became available in the United States in the early 1860s. Only when we assess technological changes to contraceptives through the eyes of those who experienced them can we appreciate Shaw's enthusiastic remarks about rubbers. What to some scholars might seem a minor technological event, Shaw saw as nothing short of revolutionary.

Before the FDA approved the Pill's distribution as a contraceptive in 1960, the condom was the most popular form of birth control in the United States. Indeed, up to that point male contraception had been the norm. One reason the Pill appealed to women was that it represented a radical break from masculinized birth control—birth control men bought, wore, and controlled. Although female methods such as the diaphragm, suppositories,

and the ineffective douche were well-known, the United States in the late 1950s was a "nation of condoms," and had been so for a century. This does not mean, however, that the condom had not changed. The condom displaced by oral contraceptives in the 1960s was radically different from the rubbers and skins available a century earlier.

FROM SKINS TO RUBBERS

Before the 1850s, most condoms in the United States were skins imported from Europe, pasted or hand stitched together from the intestines of slaughtered livestock. Europe's abundant commercial slaughterhouses sustained a brisk international trade. Skins were a staple export in cities like London, where a 1783 handbill advertising the wholesale business of one Mrs Philips boasted of 35 years' experience supplying "apothecaries, chymists, druggists... ambassadors, foreigners, gentlemen and captains of ships going abroad" with "the best goods in England on the shortest notice and at the lowest price."[6] American dealers openly advertised imported wares. One New York dealer promised readers of the *Druggists' Circular and Chemical Gazette* the finest skins "from the best manufacturers in Paris."[7] The ability of skins to prevent both the transmission of venereal disease and pregnancy was widely recognized. The legendary Italian lover Giovanni Casanova complained about having "to shut myself up in a piece of dead skin in order prove that I am perfectly alive." But he also considered condoms a "wonderful preventive" for "shelter[ing] the fair sex from all fear."[8] (Fig. 1).

Bottom-of-the-line skins were made from unprocessed intestines, better models from the repeated soaking, stretching, and drying of intestinal matter. All had drawbacks. The coarse and uneven seams protruding from low-grade models could irritate sensitive genitals, while the gaps in the stitching left unwanted semen unsheathed. By the same token, chemicals used to create finer skins left unsuspecting users vulnerable to chemically induced welts and lesions. In addition, the relative inelasticity of animal-based skins, no matter how well stretched or secured by ribbons or rings, rendered them less watertight and durable than today's form-fitting models. Condom users encountered other problems too, including skins' expense, uncomfortable thickness, permeability, and their unfortunate tendency to smell.[9]

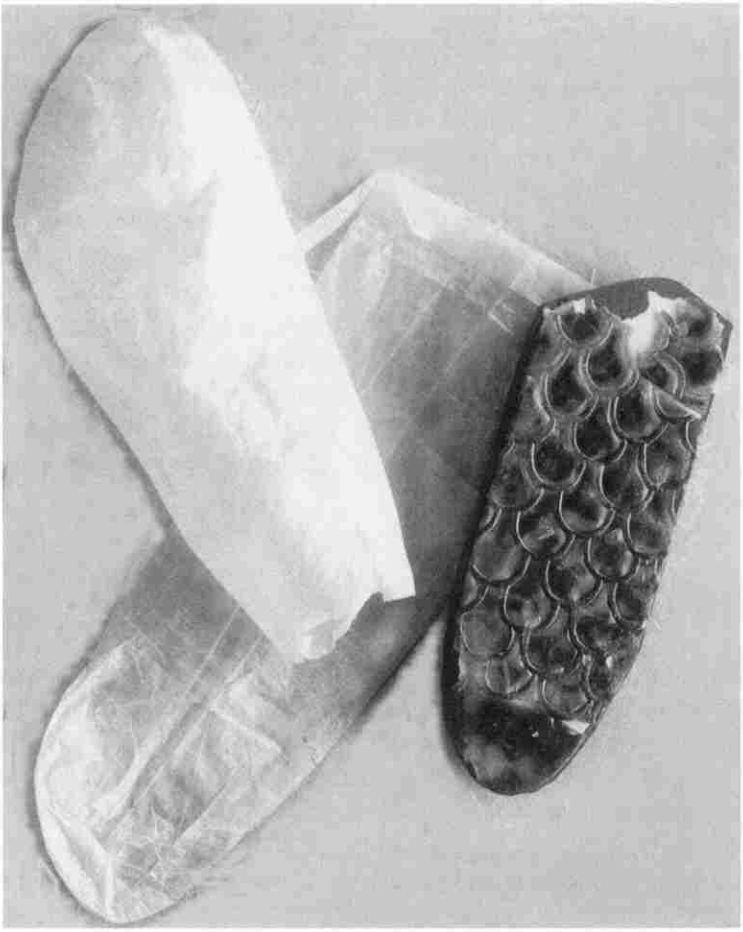


FIGURE 1 Animal membrane condoms, typically advertised as "skins," predated vulcanized rubber and latex models and were traditionally imported from Europe. Courtesy History of Contraception Museum, Janssen-Ortho Inc., Toronto, Canada.

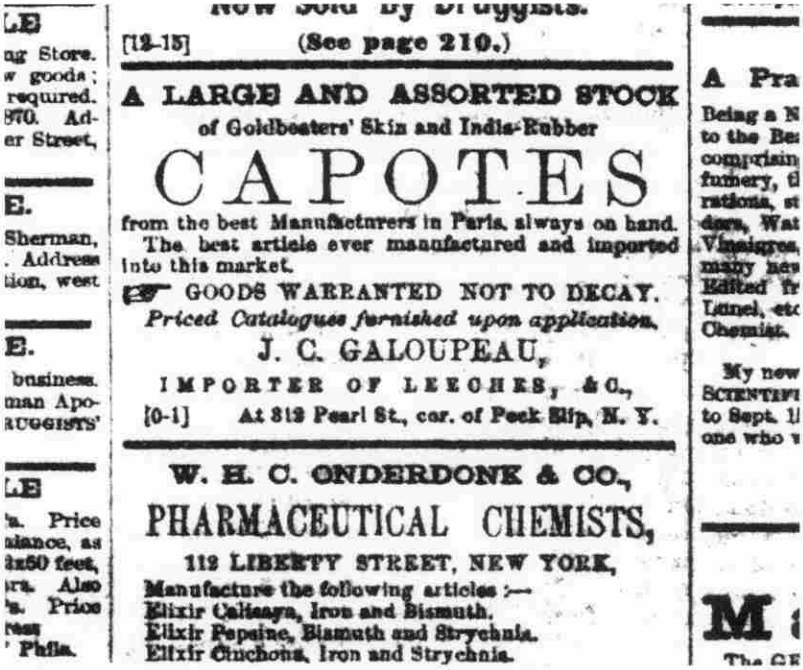
Rubbers promised much-needed relief from some of these disadvantages. The American rubber condom business came of age in the 1850s, the by-product of vulcanization technology invented by Charles Goodyear, a Connecticut inventor. Goodyear's feat was to make natural rubber commercially practical. The problem with natural rubber is its thermoplasticity. In warm weather, it loses its shape, becomes sticky and soft, and emits a foul odor. In cold weather, natural rubber gets stiff and

brittle. In 1839 Goodyear discovered that the application of high-intensity heat to natural rubber mixed with sulfur divested it of its adhesive properties, creating an air- and water-proof substance that was "charred like leather." Soon contraceptive entrepreneurs were using vulcanization technology to expand Americans' birth control choices, nurturing a fledgling domestic industry that included condoms, intrauterine devices, douching syringes, womb veils (the nineteenth-century term for diaphragms and cervical caps), and male caps, shields that covered only the tip of the penis, offering less protection from pregnancy than condoms but greater stimulation for the wearer. Goodyear himself mentioned self-acting syringes, pessaries, and "gonorrhea bags" as examples of the many uses of his discovery in his 1853 book, *Gum–Elastic and Its Varieties*. By the 1870s, rubbers had become an integral part of the burgeoning contraceptive trade and a staple of drugstores, rubber good shops, bedrooms, and brothels.[10]

FEARING THE UNNATURAL

Indeed, it was the new-found visibility of contraceptives such as condoms, a commercial vitality technological change had inspired, that prompted anti-vice crusader Anthony Comstock in 1873 to persuade Congress to pass an anti-obscenity statute that outlawed the distribution of contraceptives through the mail or across state lines (Fig. 2). Only Congress had the authority to regulate interstate commerce and the United States postal system, the key mechanisms by which the "nefarious and diabolical traffic" in "vile and immoral goods" was conducted.[11] Born in 1844, Comstock was a devout Congregationalist who, upon his return from service in the Union Army, spent the remainder of his life waging war against sexual vice. Comstock had impressed social purity reformers in the New York Young Men's Christian Association (YMCA) in the 1860s with his one-man crusade to eradicate vice. An enthusiast molded by the tradition of evangelical reform, Comstock took sin seriously, fearing that exposure to vice—be it pornography, prostitution, or contraceptives—would lead inevitably to moral decay, physical ruin, and spiritual damnation.

What Comstock and his reform-minded cronies in the YMCA and the New York Society for the Suppression of Vice found so threatening was the growing prominence of the vice trade, a robust commerce in illicit products


Now Sold by Druggists.
[12-15] (See page 210.)

A LARGE AND ASSORTED STOCK
of Goldbeaters' Skin and India-Rubber
CAPOTES
from the best Manufacturers in Paris, always on hand.
The best article ever manufactured and imported into this market.
GOODS WARRANTED NOT TO DECAY.
Priced Catalogues furnished upon application.
J. C. GALOUPEAU,
IMPORTER OF LEECHES, &c.,
[0-1] At 312 Pearl St., cor. of Peck Slip, N. Y.

W. H. C. ONDERDONK & CO.,
PHARMACEUTICAL CHEMISTS,
112 LIBERTY STREET, NEW YORK,
Manufacture the following articles :—
Elixir Calisaya, Iron and Bismuth.
Elixir Pepsine, Bismuth and Strychnia.
Elixir Cinchona, Iron and Strychnia.

FIGURE 2 Advertisements for skin and rubber condoms (also called capotes) heightened the visibility of the contraceptive trade. *Druggists' Circular and Chemical Gazette*, January 1871.

and pleasures that seemed to encourage sexual license by freeing sex from marriage and childbearing. Mail-order dildos, pornographic pictures, print erotica, condoms and other rubber "gadgets of treachery": these were very much on Comstock's mind when he persuaded Congress to harness the full power of the law to stamp out the national traffic in obscene goods. Accurately reflecting the moral crusader's actions in bringing it about, the final act was typically referred to simply as the Comstock Act.[12]

Too often, historians have dismissed Comstock as a religious zealot whose principal objective was to compel women to bear children. Comstock was no champion of women's reproductive rights, but it is important to remember that contraceptives were but one part of a much larger list of obscenities that the 1873 statute banned. In addition, Comstock's attitudes toward contraceptives were more ambiguous than some of his detractors have suggested. Comstock did not oppose so-called natural means of family limitation. Abstinence and the rhythm method, in

which intercourse was avoided during times of suspected ovulation, were acceptable to him. What disgusted Comstock was the buying and selling of contraceptives in commercial places. He clung to a typology of birth control supported by free lovers such as Ezra Heywood and Victoria Woodhull, who condoned the legitimacy of abstinence and the rhythm method but condemned man-made devices as affronts to Nature and the dignity of the species.[13] When asked by a journalist if contraception was desirable when pregnancy might endanger a woman's life, Comstock agreed that it was. But, he queried, "can they not use self-control?' God has set certain natural barriers."[14]

In short, it was the technology of contraception that was evil. Its very existence symbolized the power of man to transcend the natural consequences of sexual intimacy. In the hands of those who yearned for sex without fear of a difficult confinement, a perilous delivery, or another mouth to feed, the availability of new contraceptives was a triumph. But many others expressed alarm. Physicians and educators cautioned that women who sought to "outsmart" their wombs by using contraceptives ran a higher risk of contracting cancer, sterility, insanity, or "deranged" bladders and rectums than those who honored its primary task.[15] Men, too, were urged to defer to Mother Nature or pay the price. To deposit one's semen in a vagina was one thing; to disperse it elsewhere, one physician warned, rendered a man vulnerable to "diseases of the brain and spinal marrow, functional disorders, organic diseases of the heart, lungs, and kidneys, wasting of the muscles, blindness, and frequently by impotence."[16] Nature must be obeyed.

Others regarded contraceptives as an inducement to sexual promiscuity. As Karen Lystra has argued, many Victorians, and Comstock was among them, feared that their fellow Americans possessed enormous sexual appetites that only the risk of continual pregnancy kept in check. Not just a mechanism to guarantee the survival of the species, pregnancy performed a civilizing function, serving as society's only "brake on lust." Uncoupling pregnancy and sex, contraceptives encouraged men and women to fornicate with abandon, "like animals."[17] In keeping with this conviction, contemporaries ascribed great powers to condoms, insisting that their availability would prod men teetering between self-restraint and promiscuity to choose the latter course. Far from being uniquely Victorian, this argument was resurrected frequently after 1873. During World War I, military and political leaders in the United States endorsed abstinence-only

programs for soldiers instead of condom distribution, which was favored by other Allied nations. "It is wicked," Secretary of the Navy Josephus Daniels wrote in 1915, "to encourage and approve placing in the hands of the men an appliance which will lead them to think that they may indulge in practices which are not sanctioned by moral, military, or civil law, with impunity, and the use of which tend to subvert and destroy the very foundations of our moral and Christian beliefs and teaching in regard to these sexual matters."[18] Soldiers were instructed to use willpower, not technology, to keep their hearts pure and their bodies clean. Nor did this mistrust of condoms, rooted in the belief that the devices, themselves, would alter sexual behavior, end with the war. Today it endures in the vociferous opposition to proposals to distribute condoms in public schools.

But repeated remonstrations against contraceptives in public were at odds with their frequent use in private, which contributed to the steadily falling birthrate in America after 1820 and turned the contraceptive industry into the "hydra-headed monster" Comstock deplored. From the beginning, enforcers of the Comstock Act faced an impossible task: to extinguish both an industry and the human desire that motored it. Not surprisingly, they failed on both counts. As they had throughout history, Americans after 1873 used their own moral compass to judge the circumstances under which contraceptives were right or wrong.[19]

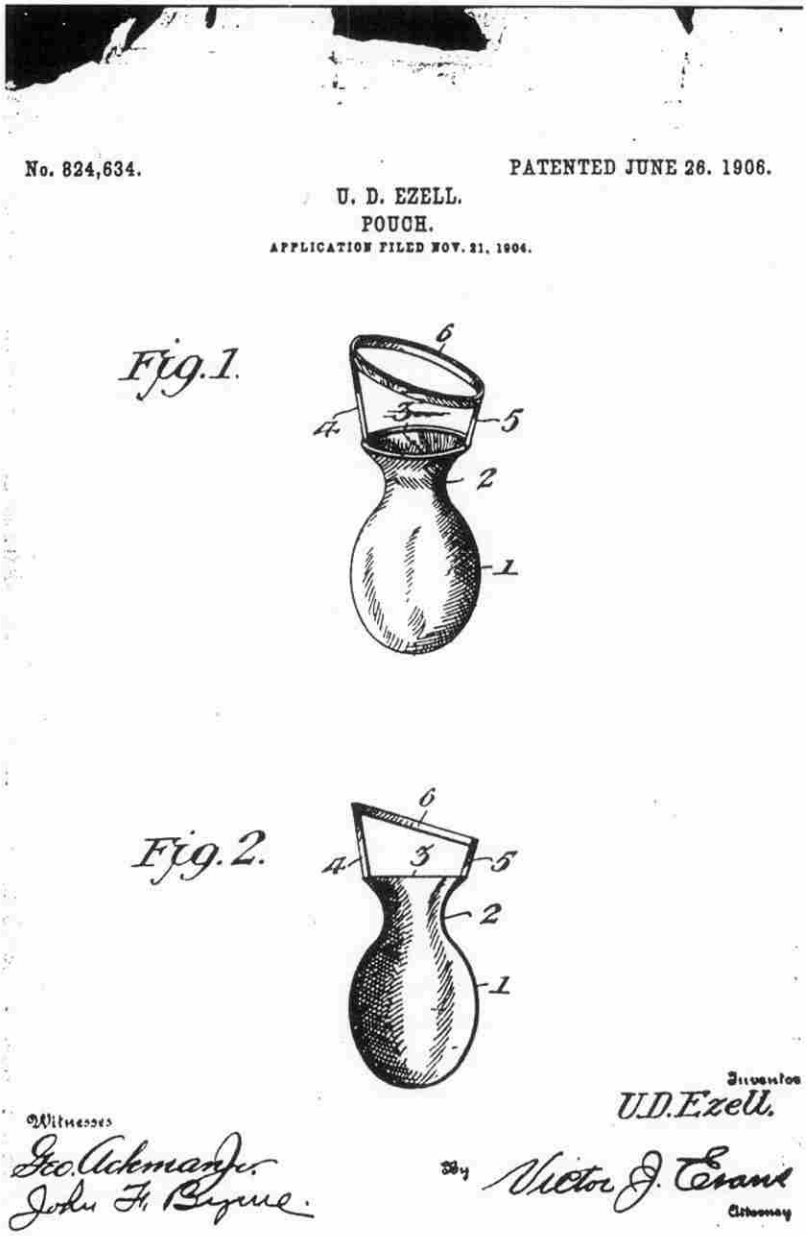
CONDOM ENTREPRENEURS

The criminalization of the American birth control business kept the structure of the nascent condom industry decentralized, low-tech, and entrepreneurial. The Comstock Act dissuaded reputable rubber firms, already in the public eye, from the exclusive production of illicit merchandise. This hesitancy nurtured a rich entrepreneurial culture in which small-scale production thrived. At the turn of the twentieth century, an era of trusts and tycoons, condoms were as much the business of ordinary folk as of the rubber giants rapidly becoming household names.

Evidence suggests that most individuals involved in the bootleg condom business were men. While women played an active role in firms that sold female contraceptives, men dominated the male side of the business. The stories of these men and their condom outfits are excluded in women's

history, and yet they can scarcely be missed if we study birth control through the prism of gender, technology, and business. One such condom entrepreneur was Julius Schmid, a paralyzed Jewish immigrant who made skins in his residence on 46th street at the northern edge of Manhattan's notorious Tenderloin district. Another was Joseph Backrach, a German-born immigrant and father of seven who cobbled together condoms, ticklers, and male caps in his Brooklyn home. The illicit character and low-capital requirements of the trade accommodated common folk like Schmid and Backrach who lacked the social and financial resources needed to get ahead in other businesses. Until the use of mass production and latex in the 1930s, manufacturing condoms was never so expensive or elaborate that individuals could not make them in small shops or in the home. Schmid, for instance, entered the world of condom manufacture as a sausage casing maker, transforming the intestines of slaughtered livestock into yards of resilient, membranous tubes, ready to be cut and stuffed to eat. The work was time-honored but messy, and it was a job that the immigrant had acquired only after spending many miserable nights alone and unemployed. In 1883, Schmid used surplus intestines to launch a side business in skins. When Anthony Comstock raided Schmid's home on September 18, 1890 he found 696 skins and "one form for manufacturing same."[20]

Making rubbers was also low-tech, as confirmed by a one-of-a-kind exposé of the business published in 1892 in the *India Rubber World*, an American trade journal. The author, Buckingham, harbored no love for condoms or those who made them, believing that their manufacture discredited the rubber industry as a whole. All the same, he felt duty-bound to discuss a sector of the rubber economy whose annual sales were estimated to be 30,000 dollars. According to Buckingham, the typical condom firm "would mean very little to the uninitiated." Small, dark, and almost bare, it consisted of "a moderate-sized room, with windows so draped that the outside world may not peer in, small zinc-covered tables, [and] racks in which hang rolls of pure sheet rubber." Few pieces of equipment were needed to make condoms, so "very little money is expended on the plant." In the shop Buckingham described, a work crew of six created condoms using a "simple process." First, workers spread natural sheet rubber on tables in preparation for cutting. The next stage varied. In some establishments, workers used cutting dies to excise appropriately sized pieces, each of which was molded around a form and dipped into a vulcanization solution for curing. In others, they doubled up the rubber, cut



No. 824,634. PATENTED JUNE 26. 1906.

U. D. EZELL.

POUCH.

APPLICATION FILED NOV. 21, 1904.

Fig. 1.

Fig. 2.

Inventor

U.D. Ezell.

Witnesses

Geo. Ackman Jr.

John F. Byrne.

By Victor J. Evans

Attorney

FIGURE 3 Condom inventors camouflaged their inventions to protect themselves from legal censor. Uberto Ezell's pouch was intended to be "applied to the male organ to catch and retain all discharges coming therefrom."

pieces to size, affixed the edges, and finally dipped inflated condoms into a vulcanization solution until they were cured.[21]

Whichever method was used, making condoms was so easy, anyone could do it. Natural rubber obtained from a distributor (purchasable without difficulty, Buckingham noted, if one claimed to need it to make dress shields), sulfur for vulcanization acquired from a druggist, a table, cutters, and a little know-how; these were the prerequisites for successful manufacture. There were no inspection costs. Because condoms were unregulated, the decision to test finished goods lay at the proprietor's discretion (Fig. 3).[22]

So simple was the process of making condoms, Buckingham warned, that entrepreneurs lured by the promise of high profits in a business that required little capital investment had flooded the market. "Since early in the 1850s," he asserted, the American condom business had positively "flourished." Others agreed. In 1889, Henry Summer, a publisher of fertility control tracts, had proclaimed that "the sale of [condoms] is now enormous both in America and Europe."[23]

CONSUMER CONFIDENCE

Although the first scientific tests of condom efficacy carried out in 1924 found a 50% failure rate, American consumers demonstrated remarkable faith in rubbers and skins.[24] Even as anti-vice crusaders denounced contraceptive technologies as treacherous gadgets, women and men clung to them as welcome protections against the dangers of Nature. It was in this vein that Mary Hallock Foote of Idaho discussed condoms in a letter to a friend in New York. Mary admitted that she and her husband found condoms unpleasant. But after becoming pregnant counting her "safe days," she concluded that "Nature is like the letter of the law which faileth." Mary and her husband yearned for a contraceptive that worked. So they tried condoms, acquired at a "first-class" drugstore.[25]

Violet Blair Janin and her husband, Albert, reached a similar conclusion. The couple were married on May 14, 1874. From Albert's boasts of "hymen breaking" we can surmise that Violet's first experiences of intercourse occurred that night. From then on, the bride awaited the onset of her menstrual period with new anxiety, as a fear of dying during childbearing because of long-standing gynecological problems had forged in her mind a

resolve to stay childless. Since May, the couple had been using the rhythm method, with Albert carefully recording what he believed were Violet's safe and unsafe days. But Violet, who lived in Washington, DC, did not trust the technique, and her letters to Albert, who worked in New Orleans as a lawyer much of the year, were plagued with worry. At a time when the safe period was generally believed to be the midpoint in a woman's menstrual cycle (the very time when, we now know, conception is most likely to occur), too many women and men had seen this and other natural methods of birth control fail. By November, she had had enough. When a female homeopath confirmed Violet's suspicions that pregnancy could be fatal, she wrote Albert, "It is best that we should have no children... So I renounce all ideas of it." Renouncing children was one thing, renouncing sex another. Opting for a middle ground, the couple discarded the maligned rhythm technique for condoms, a commercial method they both considered more reliable. On November 26, Violet discreetly asked Albert: "Would it be possible for you to find something you told me about?" By the time her letter arrived, Albert had already stocked a supply. "I have managed to procure some things I have once or twice spoken to you about. Can you guess what they are?" he wrote playfully. "I have often wished since the 14th of May [their wedding night] that I had some of them."[26]

It is significant that the Janins attempts to prevent Violet from becoming pregnant were a joint endeavor. Albert's letters, which frequently refer to birth control, should make us wary of generalizations about family planning in nineteenth-century America as chiefly women's work. The diaries of affluent women that encourage such a view of gender relations have been invaluable sources for women's history. At the same time, their self-referential character has obscured men's involvement in intimate affairs pertaining to reproduction. Violet kept a diary too, but it is only through the exchanges penned by the Janins as a couple that we learn about Albert's role. It was Albert who charted Violet's menstrual cycle and Albert who procured a stash of condoms. Ironically, the Janins' voluminous correspondence, the result of an atypical living arrangement, suggests just how typical frank discussions of reproductive control may have been among men and women in late nineteenth-century America.[27]

From the perspective of the present, the confidence couples such as the Footes and the Janins placed in a method that, as best we can determine, had a 50% percent or higher failure rate at the turn of the century may seem surprising, even misguided. But evaluating contraceptive efficacy by the

standards of a post-Pill world obscures the way Americans of an earlier era assessed birth control. Pregnancy is not a relative condition. Yet consumer evaluations of condoms in the late nineteenth and early twentieth-centuries were informed by the expectations of their own time, a time when families with four or five children were the norm and when the unregulated contraceptive market provided danger almost as often as relief. Compared to other options, moreover, condoms seemed safe. A 50% failure rate also meant a 50% success rate, a significant measure of protection for the day. In addition, consumers invented strategies to offset contraceptives failures. Refusing to let their procreative destines be held hostage by absent government safeguards, women and men did their best to shield themselves from ineffective wares. Condom buyers inflated their merchandise with water or air to see if they would burst or deflate. They manually inspected them for defects. In the days before condoms were subjected to mechanized air-burst tests, these grassroots efforts at self-protection reduced the likelihood of product failure, although by precisely how much we do not know. What we do know is that consumer testimonials of the day reveal a surprising degree of confidence in bootleg condoms. In a survey of women's sexual practices conducted by Dr. Clelia Mosher between 1892 and 1920, condoms ranked second in frequency of use after the douche, which women used for birth control and personal hygiene. One woman, a former music teacher, turned to condoms after she and her husband conceived by "accident" during her "so-called safety week." Another conceived five times before switching. When Mosher asked the woman what form of birth control she was currently using, her answer underscored her faith in condom technology: "Cundrum now," she said. "Must not conceive again."[28] Doctors sympathetic to birth control also expressed their confidence in condom technology. In the first major study of medical birth control, published in the *American Journal of Obstetrics and Gynecology* in 1924, physicians were more likely to recommend condoms than any other method.[29]

LEGALIZATION, REGULATION, AND CENTRALIZATION

In 1918, a ruling by Judge Frederick Crane of the New York court of appeals launched a new chapter in condom history. Crane's decision occurred against the backdrop of America's calamitous war-time

experiences with venereal disease. The only Allied nation not to supply its troops with condoms in World War I, the United States suffered soaring rates of infection from syphilis and gonorrhea. By the end of the war, the Army had spent over $50 million to treat diseased soldiers.[30] The VD crisis freed Americans to reclassify sex as a legitimate subjective of scientific and social research and made sexual behavior a matter of public welfare. Most important, it established a credible justification for contraception—public health—that placed the birth control debate on less incendiary grounds.

The case stemmed from Margaret Sanger's decision to open the country's first birth control clinic in Brooklyn on October 16, 1916. After 10 days distributing contraceptives (mainly cervical caps) to 488 women, Sanger was arrested by police and charged with violating New York law, which made it a misdemeanor to give away or sell contraceptive information. Sanger's lawyer argued that birth control was indispensable to sociological efforts to reduce poverty, disease, infant mortality, abortion, and low intelligence. A lower court judge rejected the claim, but when the case went before Judge Crane, the outcome was different. In a timely acknowledgment of how contraceptives might promote public health, Crane ruled that devices acquired "for the cure or prevention of disease" were not "indecent or immoral."[31] Crane defined disease broadly as "an alteration in the state of the body, or of some of its organs, interrupting or disturbing the performance of vital functions, and causing or threatening pain and sickness, illness... [and] disorder." The definition, taken from the pages of *Webster's International Dictionary*, was subsequently interpreted to be general enough to cover the use of prophylactics against both venereal disease and dangerous pregnancies. Although the decision allowed Margaret Sanger to open the first permanent birth control clinic for women (under the auspices of dispensing birth control to protect women from life-threatening pregnancies), Crane's ruling had its most immediate impact on the condom business. After 1918, the condom industry flourished with the technology's new-found medical respectability. Skins and rubbers marked "for the prevention of disease only" flooded a cornucopia of male settings and were sold by men of many trades: bellhops, elevator boys, street peddlers, barbers, bartenders, grocery clerks, tobacco merchants, waiters, filling-station attendants, bootblacks, operators of slot machines and fraternity brothers.[32] Condom production and retail statistics paint a picture of sustained expansion and profits. In Baltimore, for instance, the number of condoms sold more than doubled between 1914 and 1928,

jumping from 3 to 6.25 million.[33] V.F. Calverton, a young radical critic interested in the problems of sex, studied the condom industry's growth. "At no time before had there been this immense expansion of the business of manufacturing, distributing, and selling [condoms] as is to be noted with the War" he wrote in 1928. "What before was merely a profitable business, now became a matter of large-scale production... [with] all of the paraphernalia of an enormous industry."[34] By 1931, the top fifteen U.S. manufacturers produced 1.44 million condoms daily, mainly buff-toned rubbers made from Ceylonese or Javanese rubber.[35]

For Sanger, the surging popularity of condoms was a bittersweet by-product of her campaign to make birth control respectable. Sanger viewed birth control as a woman's right and responsibility. "The question of bearing and rearing children," she would write in 1922, "is the concern of the mother and potential mother." Female knowledge and control over contraception were preconditions of women's emancipation from the burdens of endless childbearing: "No woman can call herself free who does not own and control her own body." Condoms compromised this objective by placing women's procreative destiny in men's hands. Until her death in 1966, Sanger championed the preferability of female birth control and promoted the manufacture of diaphragms and, later, the Pill, partly to realize her dream of female empowerment through women-oriented technologies.[36]

Like Sanger, many doctors in the late 1920s and 1930s came to favor female methods, particularly the diaphragm, which required a physician's prescription and thus necessitated the involvement of the medical profession. The condom was the birth control method doctors had most frequently recommended in the 1924 study published in *AJOG* but by the 1940s it had slipped in stature. One survey undertaken in 1941 found that 306 out of 453 doctors prescribed diaphragms but only 26 recommended condoms. A 1944 survey of 3381 doctors by Dr Allen Guttmacher, an obstetrics professor at the Johns Hopkins University, confirmed this reversal. It found that 69.6% of doctors ranked the diaphragm their first choice for birth control. Condoms were a distant rival, accounting for only 9.5% of doctors' first recommendations. Significantly, the two surveys were completed after FDA regulations instituted in 1937 had improved the safety and efficacy of condoms.[37] Doctors' stance was all the more disquieting when one takes into account the fact that then, as today, the condom was the only method available to women that protected them from

both pregnancy and the transmission of sexually transmitted disease, which were effectively incurable until the mass distribution of antibiotics after World War II.

It was not that doctors suddenly forgot about the condom, whose sales were booming. But even as men signaled their willingness to wear condoms by purchasing sheaths in unprecedented numbers, birth control advocates disparaged men's ability to be diligent users. If some medical reports were to be believed, American men were selfish, weak, and irresponsible, as ready to submit to condom use as they were to torture. In a 1924 report that celebrated the arrival of the new, scientifically engineered and doctor-fitted diaphragm, Dorothy Bocker, medical director of Sanger's birth control clinic, lambasted the condom as a technique that "places [the] wife at [the] mercy of unkind, careless, indifferent, or alcoholic husbands." Robert Dickinson of the Committee on Maternal Health, an association devoted to the scientific promotion and evaluation of fertility control, warned that the sheath "is very commonly refused by the feebly virile and the selfish."[38] Although the medical malignment of male character was at odds with everyday practice, it marshaled support for female birth control and implicitly disputed the need for better or different male methods.

While doctors and birth control proponents pushed the prescription-only diaphragm, the vast majority of contraceptive consumers opted for over-the-counter birth control. In 1938, diaphragms accounted for less than 1% of the industry's total sales.[39] Eschewing the embarrassment, inconvenience, and expense of a doctor's visit, women and men in the interwar year got their contraceptives—condoms, vaginal jellies, liquid, suppositories, foaming tablets, and douches—from pharmacies, five-and-dime stores, mail-order firms, and itinerant peddlers. Men shopping for condoms confronted a dizzying array of options. One condom manufacturer later recalled that in the 1920s condoms were "gypped around on street corners." Peddlers "would approach you on the street or in your office; barbers would approach you; you could get them in delicatessen stores, candy stores, tailor shops-every place, every conceivable place where a man might go to make a purchase, they would be offered to you."[40]

Two who successfully rose above the crowd were Merle Youngs and Julius Schmid. To distinguish themselves from the competition, both began in the mid-1920s to confine condom sales to the exclusive drugstore market. In the1920s, Schmid had come along way since his early days as a sausage-casing worker. He had branched out into diaphragms and

spermicidal jellies. He continued to make skins but he also manufactured Ramses and Sheik rubbers using the cold-cure cement technique, in which workers dipped glass formers into crepe rubber that had been milled and liquified in a solvent, typically gasoline or benzene. The technique had been widely used in condom manufacture in Germany since the 1880s, but Schmid was the first to popularize it in America. Reasoning that condom users would pay more for merchandise that they trusted, he invested in product quality to cultivate a loyal consumer base. In 1938, in its first report on the birth control business, *Fortune* magazine pronounced Julius Schmid the undisputed king of the American condom empire.[41]

Merle Youngs likewise sold his triple-dipped and air-tested Trojan rubbers only to doctors, licensed druggists, and reputable wholesalers, who together represented the ethical wing of the contraceptive trade. Trojans cost about $1.50 per dozen and three for $.50, almost twice the price of bargain brands sold at non-drugstore outlets.[42] Tripple-dipped and air-tested, Trojans cost more to make. But the primary reason for the high price was the druggists' add-on, which was usually 300%. Youngs's retail policy sealed the loyalty of druggists, who touted the steep price of Trojans as the consumer's guarantee of excellence. When another distributor began selling copycat Trojans, Youngs's company, Youngs Rubber, took him to court, declaring the rival a loathsome infringer, a "jobber of spurious Trojans." The courts had never before upheld the legitimacy of trademark protection for condoms, but in a momentous ruling, the U.S. Court of Appeals for the Second Circuit did. The *Youngs* decision of 1930 was a watershed in the history of the birth control business. The court declared condoms contraband when they "promoted illicit sexual intercourse" but legal when they were purchased to prevent disease. The test of legitimacy lay in the condoms' intended use, not in their intrinsic nature. As such the interstate business, when confined to legitimate medical and pharmaceutical outlets, was legal. Indeed, the court commended Merle Youngs's druggists-only distribution policy, which it credited with uplifting an otherwise tawdry trade.[43]

The *Youngs* decision was significant for several reasons. First, the protections the Crane decision had established in the state of New York were now extended explicitly to manufacturers engaged in interstate commerce. Although not the final assault on the Comstock Law (the statute's importation ban, for instance, would not be lifted until the 1970s), the *Youngs* decision was an important modification. Second, it encouraged

companies such as Youngs Rubber and Julius Schmid to treat brands as a basis for product differentiation and consumer selection. In 1931, Julius Schmid applied to the U.S. Patent Office for trademark recognition of Fourex and Ramses, the company's most established brands. Third, mirroring larger efforts to eliminate medical quackery, the court's decision delineated the parameters of dignified condom commerce. Linking legitimate use to retail venues, the court constructed an erroneous conception of the marketplace in which noble druggists sold condoms to prevent disease whereas barbers, gas station attendants, and shoe shiners sold them for illicit purposes such as birth control. Fourth, by upholding the Trojan trademark, the *Youngs* decision legitimized the interstate condom business, providing manufacturers with an incentive to expand operations and to adopt new production technologies to achieve economies of scale (Fig. 4).[44]

These new technologies revolutionized how condoms were made. Since Schmid had introduced the cement-dipping technique in the United States, the chief problem condom manufacturers faced was fire hazard. Ingredients used to break down and liquefied crude rubber was highly flammable. To prevent a factory meltdown, condom makers had to avoid "fire, friction, of any kind, or a spark from a motor or a fan." But even the best safety efforts could not ward off disaster. Only a year before the *Youngs* decision, Merle Youngs had lost his entire factory dipping room to fire. Manufacturers earnestly searched for a technological way out of the problem. "We were very anxious to get away from the fire hazard," Youngs recalled about the late 1920s. "The insurance was terrific, and you never knew when your plant was liable to go up in smoke."[45]

Latex and continuous assembly production offered solutions. By the 1920s, scientists had discovered a chemical formula that allowed latex—the milky liquid collected from rubber trees—to be transported uncoagulated in barrels from South America, India, and Indonesia. Latex was more expensive than crude rubber, but it was liquid in its natural state and not combustible. In the late 1920s, condom companies experimented with techniques for transforming the substance into condoms. One man in the industry later recalled that from 1920 to 1930 "hundreds of the best brains in the country on latex and rubber were seeking to devise methods and apparatus" to allow the substitution of latex for rubber.[46]

Less flammable than crude rubber, latex was well suited to continuous assembly lines, which were already in use in the United States in the car,

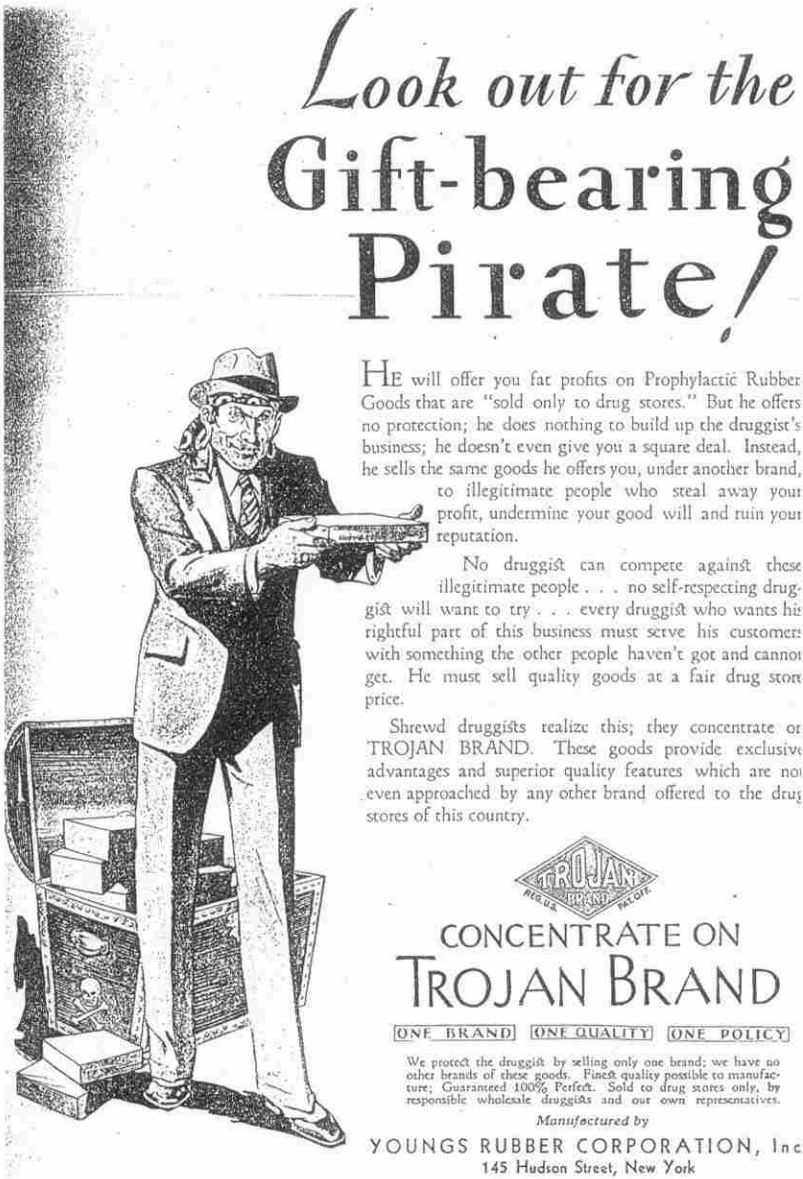


FIGURE 4 After its court victory in 1930, Youngs Rubber promoted its Trojan trademark as an emblem of product superiority and commercial legitimacy.

food, and textile industries. Manufacturers scrambled to be the first to apply this technology to latex condoms. In 1930, Fred Killian of Akron, Ohio reached the finish line first. After a relative died in a factory fire, he invented a condom assembly line that converted latex into finished condoms, "automatically, rapidly, continuously and without the intervention of human hands."[47] When operating around the clock, the machine churned out eight hundred gross of condoms a day without danger to "life, limb, and property."[48] Youngs Rubber, which bought the patented machine, found it could make in a day what had previously taken a month, but the machine's hefty twenty-thousand dollar price tag and steep royalty fees made it prohibitively expensive to smaller outfits.[49]

By the mid-1930s, the once volatile and competitive condom industry had been reduced to a handful of players. The industry was further centralized by the push for government-regulated and tested condoms. In 1935, Oregon became the first state to enact a law regulating the safety and reliability of commercial prophylactics and contraceptives. Guided by the rationale outlined in the *Youngs* decision, the state limited the sale of condoms to state-licensed pharmacists, jobbers, surgical supply houses, and retail drugstores. In 1937, the FDA hopped on the regulatory bandwaggon, advising manufacturers of rubbers and skins that condoms would henceforth be subjected to FDA jurisdiction and inspection. By June 1938, the FDA's condom raids had resulted in the seizure and destruction of more than 6000 gross of substandard rubbers, and forced dozens of smaller firms out of business. The FDA's decision prodded leading condom outfits to adopt mechanized inspection technologies to meet FDA standards. Indeed, Merle Youngs credited mechanized inspection with cutting testing costs to one-seventh of what they had been when performed by hand.[50]

Like assembly lines, inspection technologies were prohibitively expensive for start-up firms. By 1950, Youngs Rubber and Julius Schmid controlled fifty percent of the $100 million condom market. In just a few decades, the small-scale condom entrepreneurs who had made sheaths by hand in basement workshops and family bedrooms had become a thing of the past. In their stead stood corporate Goliaths, automatic assembly lines, and name-brand condoms meeting industry specifications set by Washington.[51]

Changing perceptions of public health and disease prevention, the adoption of latex, and the employment of new production and inspection

technologies transformed both the industry and American's experiences with condoms. Consumers celebrated the arrival of a new generation of condoms that were "thin and silky" and sheerer then the "surgeon's glove." Certainly they were more stimulating to wearers than the condoms stitched out of sheet rubber mentioned in Buckingham's report. Long lasting and less susceptible to moisture than traditional rubbers, latex condoms were discreetly packaged in small aluminum and tin boxes. Above all they were cheap, enabling a majority of Americans for the first time to embrace the practice of onetime condom use, a significant improvement in pregnancy prevention over the recycled condom of the past.[52]

Historians have often described the 1920–1950 era as a time when women turned to diaphragms and sought contraceptive advice from physicians. But what is most striking about this period of birth control history was the success of the over-the-counter birth control industry, especially the condom. Although over-the-counter feminine hygiene products outsold condoms in the 1930s, by the mid-1950s, as the drawbacks of the antiseptic douche became better known and as consumer confidence in condoms soared, condoms became the leading contraceptive in the country.[53] In 1958, when sales of "ethical" female contraceptives (diaphragms, spermicidal jellies, creams, and tablets) accounted for $20 million, condoms were a $150 million business.[54]

The popularity of condoms helps explain the reaction of Gregory Pincus, the chief inventor of oral contraceptives, to one female critic who wrote Pincus to express her anger that scientists had not bothered to invent a pill for men. Pincus replied that worldwide "men exercise control in far larger numbers than do women." The media excitement surrounding the Pill, he insisted, stemmed from the possibilities of female control over what had historically been a masculine domain.[55] Indeed, the condom would remain the contraceptive of choice in the United States until the mid-1960s, when the prescription-only Pill would finally medicalize and feminize American birth control. By 1963, U.S. sales of condoms had plummeted to $85 million. In 1968, Americans were twice as likely to use the Pill as they were condoms.[56]

This brief sketch of recent condom history in the United States suggests the many ways changes in law, production, marketing, political attitudes, and understandings of disease can transform technologies and people's experiences with them. It offers a case study of the benefits of including gender and a careful accounting of technological change in history. Birth

control has often been women's work, but its history has also involved men who were legislators, reformers, inventors, manufacturers, retailers, judges, and willing partners in a joint effort to limit family size. And it is precisely this history of male involvement that can inspire Americans of child-bearing age with the hope that when the next contraceptive revolution occurs, men will be given even more opportunities to assume the risks and responsibilities of pregnancy prevention.

Acknowledgements

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Notes

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2. James Reed, (1978) *From Private Vice to Public Virtue: The Birth Control Movement and American Society since 1830*, Basic Books, New York; Linda Gordon, (1976) *Woman's Body, Woman's Right: Birth Control in America*, Grossman, New York; David M. Kennedy, (1970) *Birth Control in America: The Career of Margaret Sanger* Yale University Press, New Haven. Gordon, p. xiv.
3. Andrea Tone ed., (1997) *Controlling Reproduction: An American History*, Scholarly Resources, Wilmington, pp. xiii–xiv.
4. Gordon, *Woman's Body, Woman's Right*, pp. xii, 25–26; Elizabeth Watkins has made a similar argument. Discussing the importance of the Pill, Watkins argues that "all other methods available in the 1950s had antecedents that dated back to ancient times. Intrauterine devices, vaginal suppositories and pessaries, douches, condoms, withdrawal prior to ejaculation, periodic abstinence based on the menstrual cycle, surgical sterilization, abortion and infanticide had been used in different cultures for centuries". See Elizabeth Siegel Watkins, (1998) *On the Pill: A Social History of Oral Contraceptives*, 1950–1970, Johns Hopkins University Press.
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9. Janet Farrell Brodie, (1994) *Contraception and Abortion in Nineteenth-Century America*, Cornell University Press, Ithaca, NY, p. 210; Robert A. Hatcher, James Trussell, Felicia Stewart, Gary K. Stewart, Deborah Kowal, Felicia Guest, Willard Cates, Jr., and Michael S. Policar, (1994) *Contraceptive Technology*, 16th Rev. Ed., Irvington, New York, p. 167; Bullough, *Brief Notes on Rubber Technology and Contraception*, p. 108; Tone, *Devices and Desires*, pp. 68–70.
10. *The United States Practical Receipt Book: or, Complete Book of References* (Philadelphia: Lindsay and Blakiston, 1844), p. 29; Brodie, *Contraception and Abortion*, pp. 190–191; Howard Wolf and Ralph Wolf, (1936) *Rubber: A Story of Glory and Greed*, Covici, Friede, New York, pp. 15–29; Tone, *Devices and Desires*, pp. 14–15; Quote is from "Charles Goodyear's fame," *Druggists' Circular*, 64 (September 1920) 345.
11. Andrea Tone, "Black market birth control: contraceptive entrepreneurship and criminality in the gilded age", *Journal of American History* 87 (September 2000) 439.
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17. Karen Lystra, (1989) *Searching the Heart: Women, Men, and Romantic Love in Nineteenth-Century America*, Oxford University Press, New York, pp. 105–105.
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27. Tone, *Devices and Desires*, p. 43.
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30. Tone, *Devices and Desires*, p. 99.
31. *The People of the State of New York v. Margaret H. Sanger*, Court of Appeals of New York, 118 N.E. 637; Margaret Sanger, "Why I went to jail", *Together*, February 1960, p. 20; Reed, *From Private Vice to Public Virtue*, pp. 106–108.
32. Tone, *Devices and Desires*, pp. 107–108, 183, 188.
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42. Tone, *Devices and Desires*, p. 190.
43. Transcript of Record, *Youngs Rubber v. C.I. Lee and Company*, pp. 31–35; Murphy, *Condom Industry in the United States*, pp. 11–12.
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45. Transcript of Record, *Youngs Rubber Corporation v. C.I. Lee and Company*, Records of U.S. Court of Appeals for the Second Circuit, National Archives, Regional Office, New York, pp. 74–75.
46. Transcript of Record, *Youngs Rubber Corporation v. C.I. Lee and Company*, Records of U.S. Court of Appeals for the Second Circuit, National Archives, Regional Office, New York, pp. 11–12; Tone, *Devices and Desires*, pp. 193–94.
47. Transcript of Record, *Perry Stevens v. Carl Schmid*, pp. 282, 336–38; "Accident of birth," p. 108; *Frank B. Killian and Company v. Allied Latex Corporation*, pp. 9–12.
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