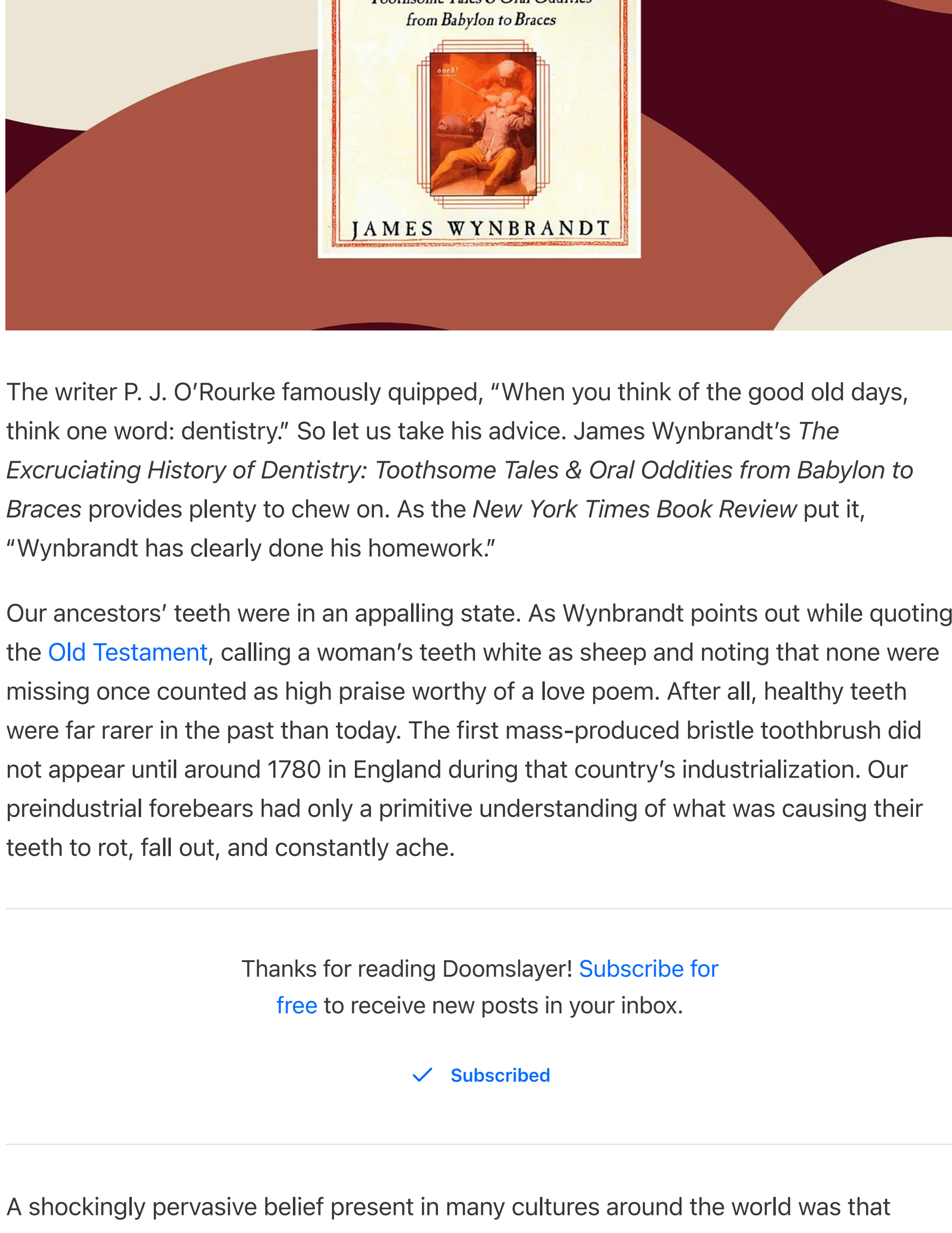


# Grim Old Days: James Wynbrandt's Excruciating History of Dentistry

Preindustrial dentistry was rife with bizarre remedies and dangerous techniques.

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The writer P. J. O'Rourke famously quipped, "When you think of the good old days, think one word: dentistry." So let us take his advice. James Wynbrandt's *The Excruciating History of Dentistry: Toothsome Tales & Oral Oddities from Babylon to Braces* provides plenty to chew on. As the *New York Times Book Review* put it, "Wynbrandt has clearly done his homework."

Our ancestors' teeth were in an appalling state. As Wynbrandt points out while quoting the [Old Testament](#), calling a woman's teeth white as sheep and noting that none were missing once counted as high praise worthy of a love poem. After all, healthy teeth were far rarer in the past than today. The first mass-produced bristle toothbrush did not appear until around 1780 in England during that country's industrialization. Our preindustrial forebears had only a primitive understanding of what was causing their teeth to rot, fall out, and constantly ache.

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A shockingly pervasive belief present in many cultures around the world was that toothaches were caused by small worms. Numerous surviving Babylonian inscriptions related to toothaches "invoke Ea, god of the abyss, and Anu, god of heaven, to smote the tooth worm." Fighting the supposed worms infecting everyday people's teeth was a constant battle. "By about 2250 B.C., physicians were smoking 'worms' out of cavities using henbane seed kneaded into beeswax. The mixture was heated on a piece of iron and the smoke directed to the cavity by a funnel."

Centuries passed with little progress in dental techniques or understanding. A 13th-century manuscript in Old English titled *Leechdoms, Wortcunning, and Starcraft* (roughly, "Medicine, Natural Remedies, and Astrology") suggests a similar technique:

For tooth-worms take acorn-meal and henbane-seed and wax, of all equally much. Mix them together. Make them into a wax candle, and burn it; let it reek into the mouth, put a black cloth under, then shall the worms fall on it . . . if a worm eat the tooth, take an old hollylea[f], hartwort, and sage. Boil in water, pour it into a bowl, and yawn over it; then the worms shall fall into the bowl . . . fray to dust the rind of nut tree and thorn tree; cut the teeth on the outside, shed the dust on frequently. For the upper toothache take leaves of withe, wind and wring them on the nose. For the nether toothache, slit the gums with the instrument till they bleed.

To perform a tooth extraction, the same manuscript suggests grinding newts or lizards into a powder and applying the concoction to the rotten tooth "frequently," purportedly to cause the tooth to fall out painlessly. A 15th-century manuscript suggests essentially the same tooth extraction technique but using "raven's dung" instead of newt powder. The physician John of Gaddesden (1280–1361), who taught at Oxford University, recommended a nearly identical method using the extracted fat of a "green frog"; in the 16th century, the Faculty of Medicine at Paris similarly recommended using "lizard liver" to calm toothaches. In 1630, Johann Stephan Strobelberger, the physician at the royal baths of Karlsbad, also recommended using the "fat of a green tree frog."

Farther east, "Islamic physicians used arsenic to loosen teeth," which was more effective since arsenic is extraordinarily toxic and could kill surrounding gum tissue and the nerves of teeth before extraction. However, this had the unfortunate side effect of poisoning patients, potentially causing severe health problems or even death. Dental practitioners in 15th-century Italy also advocated using arsenic to kill gum tissue, providing pain relief by rendering nerve endings nonfunctional. Arsenic was used as late as 1879, when the *New York Times* ran a story headlined, "Fatal poison in a tooth; what caused the horrible death of Mr. Gardiner. A man's head nearly severed from his body by decay caused by arsenic which had been placed in one of his teeth to deaden an aching nerve," detailing the gruesome demise of a man in Brooklyn named George Arthur Gardiner "in great agony, after two weeks of indescribable suffering." In fact, arsenic "remained in wide use until the introduction of Novocain in the twentieth century."

But enough about arsenic. Let us get back to the topic of tooth worms. Even the French physician Guy de Chauliac (1300–1368), the man who coined the term *dentista* (the progenitor of our word "dentist"), was "a proponent of the worm theory of tooth decay [and] suggested fumigation with seeds of leek, onion, and henbane mixed with goat's tallow to drive out the worms. Bloodletting from the lips, tongue, and facial veins were other treatments he advocated." Interestingly, the now bizarre-seeming notion of tooth worms was widely held in many different parts of the world, not just in the West. A 13th-century Arab scholar named Abd al-Rahim al-Jawbari sought to debunk the popular notion of the existence of tooth worms by revealing how the best evidence of the supposed worms was fake: clever charlatans snuck real worms into the mouths of unsuspecting patients only to then triumphantly extract the ordinary worms, falsely presenting them as tooth worms. Similarly, some "Chinese charlatans hid maggots in the hollow portion of extricating instruments, and pulled maggots from the mouth along with [the] extracted tooth."

A medical treatise written by the ancient Roman physician Aulus Cornelius Celsus and printed hundreds of years after his death in 1478—when it was still consulted as credible medical advice—observed that toothaches "may be numbered among the worst of tortures" and recommends numbing the pain with a narcotic mixture of poppies (opium), mandrake (containing a toxin with hallucinogenic effects), cinnamon, and castoreum from the scent glands of beavers. For millennia, dentistry generally consisted of little more than attempts to numb the constant pain of toothaches and to pull out rotted teeth.

Itinerant tooth extractors traveled from village to village offering their services. By the medieval period, "The trademark of the itinerant tooth-drawer was a banner and parasol. A small alligator hung from the parasol, according to some accounts, signifying the piece of 'alligator tail' stuffed in the empty tooth socket following extraction to staunch the bleeding. . . . and a necklace of extracted human teeth was also part of their standard regalia." Preindustrial dentistry also functioned as a form of popular entertainment:

A trumpet blares, calling the rabble to gather before a stage in the marketplace. On a raised platform, a chattering monkey surveys the throng beneath a parasol while a juggler performs tricks and recites ribald jokes, warming up the assembly. Now the juggler retires, the music stops, and a commanding figure bolts onto the stage dressed in a magnificent plumed hat and rich tunic, a necklace of human teeth strung about his neck. Soon his boastful oration has lured a recalcitrant toothache sufferer to the stage. It is over in a moment . . . the tooth-drawer holds the tooth aloft for the crowd's delectation. Now more of the orally afflicted press forward to submit to the tooth-drawer's ministrations. It is unlikely those lining up will have as unpainful an experience as the confederate who just pretended to have his tooth drawn. But the blare of horn and beating of drum will drown out their cries. And by the time sepsis sets in or other life-threatening complications arising from the tooth-drawer's incompetence present themselves, the charlatan will be long gone. This is the dentist's office of the Middle Ages.

Wynbrandt quotes the Scottish historian John Menzies Campbell, who describes the itinerant tooth-drawers of 17th-century Scotland as similarly accompanied by "lewd yet amusing songs and other entertainments," noting that "tooth-drawing was always one of the most popular [performances] to entertain the crowd." While tooth-pulling techniques hardly evolved over the centuries, the fanfare that accompanied the dangerous extractions grew more ostentatious.

Crowds were . . . important, both to increase the pool of potential patients and to create the excitement that stimulated business. Fairs, marketplaces, and bazaars were prime sites for their theatrics, which was essentially entertainment, or performance art. Over time, more pageantry was added to these events. The operating platform evolved into an elaborate stage. The tooth-drawer spent less time warming up the crowd, turning the duties over to professional entertainers. Songs and other presurgery amusements would start the show. Clowns, conjurers, and jugglers were among the entertainers employed to draw crowds. When the tooth-drawer—often an inept charlatan—took the stage, he customarily described his credentials, typically all fatuous and invented.

In Europe, many tooth pullers claimed to possess teeth belonging to the patron saint of toothaches, an early Christian martyr named Apollonia whose teeth had been "broken and extracted, one by one [as] punitive extractions were a common torture of the Roman Empire." (A side note: Wynbrandt also relates how tooth extraction was used as a punishment by England's King John (1167–1216), who is said to have personally pulled the teeth of one victim from Bristol.) By the 15th century, far more of St. Apollonia's supposed teeth were on display than could possibly fit in one human mouth. "King Henry VI, a deeply religious man, was so appalled at the widespread use and belief in these relics that he ordered all of them turned over to his agents. According to accounts of the roundup, 'a ton of veritable teeth of St. Apollonia were thus collected together, and were her stomach proportionate to her teeth, a country could scarce afford her a meal!'"

Other dentistry-related hoaxes abounded. In the late 16th century, a professor named Jacob Horst at Germany's University of Helmstedt claimed that a seven-year-old Silesian boy had somehow grown a golden tooth: "Horst concluded that the golden tooth was created by a supernatural power as a result of the peculiar planetary alignment under which the youth was born." The boy's refusal to open his mouth and display the golden tooth for interested local scholars "provoked a nobleman to stab his face with a dagger." The boy needed surgery as a result of the stabbing. During the surgery, it was discovered that the child simply had a well-fitted golden crown on one of his teeth; the seven-year-old was promptly sent to prison for his presumed involvement in the hoax. (It is unclear whether Horst was in reality a perpetrator or gullible victim of the ruse, but the blame was placed on the child). That so many eminent scholars could be fooled by such an outrageous hoax illustrates the sorry state of dental knowledge at the time. Another German scholar, Walther Hermann Ryff, opined around 1544 that "the eyes and the teeth have an extraordinary affinity or reciprocal relationship to one another, by which they very easily communicate to each other their defects and diseases," in another example of strange dentistry-related beliefs.

Barber-surgeons who performed bloodletting often doubled as tooth pullers, prompting the English poet John Gay (1685–1732) to describe their offices as displaying "black rotten teeth in order strung," helping to advertise that a "threefold trade" was practiced by these professionals "who shav'd, drew teeth, and breath'd a vein" (e.g., bloodlet). "Bloodletting was also practiced by dentists in America, reaching its peak of acceptance in the first half of the 1800s." The world's first dental journal, the *American Journal of Dental Science*, began publication in 1839, and in its premier volume it recommended "local and general bloodletting" as the standard first step to treat tooth decay. That advice would have been familiar to those practicing dentistry centuries earlier. The esteemed Italian physician Giovanni d'Arcoli (ca. 1412–1484), who taught at the University of Bologna and was an early pioneer of gold fillings, was among those who advocated "cautery, bloodletting, and laxatives" to cure toothaches.

In many areas, a guild system and other laws regulated who could become a tooth puller. For example, in 1557, an English widow was formally ordered to close up shop for the crime of continuing her late husband's tooth-pulling business after his death and her remarriage because widespread sexism made the idea of a female dental practitioner outrageous. Obviously, such occupational restrictions on the profession had no positive impact on the quality of dental care.

Deserved disdain for tooth extractors was common. The 16th-century Swiss professor of medicine Theodor Zwinger advised respectable physicians to leave dentistry to the charlatans, as tooth extractions were fraught with "unpleasant accidents," such as fractured jaws and uncontrollable hemorrhaging. The Dutch physician Cornelis van Soelingen, active toward the end of the 17th century, described the state of tooth extractions with similar contempt. "The earliest engraving of such a subject, created by Lucas van Leyden of the Netherlands in 1523, shows the tooth puller studiously engaged in removing a tooth from the patient's mouth. The female accomplice is meanwhile engaged in picking the patient's purse." One medieval English tooth puller, "William le Tothdrawer, [sic] resorted to deception and assault to supplement his meager earnings. Imprisoned, he was said to have been subsequently released due to poverty—and this was in a country that maintained jails for debtors, a reflection, perhaps of society's regard for his profession as beneath contempt." A work written in 1605 describes tooth drawers and other itinerant healers this way: "The whole Rable [rabble] of these Quack-Salvers [salvers, i.e., healers] are of base wit and perverse. They for the most part are the living and sordid scumme [sordid scum] and refuse of the people, who . . . get their living by killing men."

Tooth pullers were also known to be eccentric. The quack dentist Martin van Butchell (1736–1814) gained notoriety for displaying his deceased embalmed wife in London to attract more customers. "By the eighteenth century in France, the tooth-puller's reputation had passed into the vernacular in the popular adage of the time, *Mentir comme un arracheur de dents*, or 'lie like a tooth drawer.'"

Yet the widespread problem of aching, rotting teeth meant that tooth pullers managed to attract customers despite their reputation as liars, thieves, and quacks. "By the time one was ready and willing to submit to a tooth-drawer, he was probably in terrible agony" and desperate enough to even risk a broken jaw, extreme blood loss, or death by sepsis to end the pain. Even if a patient was fortunate enough to find a relatively trustworthy tooth puller, "without modern equipment or painkillers, treatment, no matter how competent, was assuredly a horrific experience."

Clearly, tooth extraction was not only painful but, as noted earlier, often lethal. The writer Gariopontus gave perhaps the earliest—and most anatomically confused—account of a death caused by tooth extraction when he wrote in the year 1045, "On the island of Delphi, a painful molar extracted by (an) inexperienced physician, occasioned the death of a philosopher, for the marrow of the tooth, which originates from the brain, ran down the lungs and killed the philosopher." The French barber-surgeon Ambroise Paré (1510–1590) paid unusual attention to patient safety when he advised, "The extraction of a tooth should not be carried out with too much violence, as one risks producing luxation of the jaw or concussion of the brain and the eyes, or even bringing away part of the jaw together with the tooth (the author himself has observed this in several cases), not to speak of other serious accidents which may supervene, as, for example, fever, apostema, abundant hemorrhage, and even death." Throughout the preindustrial age,

dental practitioners of the era racked up kill ratios comparable to what a well-equipped and trained combat unit could produce. The toll of their oral ministrations usually landed dentistry firmly in death's top ten list of causes. London's weekly Bill of Mortality of August 15–22, 1665, recorded 5,568 fatalities, with 'Teeth' holding the no. 5 spot on the chart. Take out the 4,237 dispatched by the plague (the no. 1 killer of the week), and the 111 souls who succumbed to complications from dental procedures accounted for almost 10 percent of all deaths. Most died from 'mortification'—infection—that set in after botched operations or as a result of unsanitary practices.

As noted, broken jaws were another exceedingly common outcome of tooth extraction. In 1530, the first printed book on dentistry, the German *Zene Artzney*, or "Medicines for the Teeth," advised, "The sign by which you may judge whether the jaw be fractured or something of it broken off, is when the cavity wherefrom the tooth has been drawn bleeds more than usual, and the jaw swells so much that one cannot open the mouth, and the cavity festers and swells." In the 17th century, as sugar became more widely available in Europe, tooth decay became an even more common ailment. The wealthy, who had the earliest and most abundant access to sugar, were the first and worst afflicted. By 1602, it was observed that Queen Elizabeth I "showeth some decay, which to conceal when she cometh in public she putteth many fine cloths into her mouth to bear out her cheeks." In other words, she was missing enough teeth to even affect the outward appearance of her face, with her skin sagging into the space where teeth would normally be. Wynbrandt quotes the English historian John Strype's claim that, in 1578, Elizabeth I's aching teeth

forced her to pass whole Nights without taking any Rest; and came to that Extremity that her Physicians were called in and consulted. . . . The pulling it out was esteemed by all the safest way; to which, however, the Queen, as was said, was very averse . . . the Bishop of London being present, a Man of high Courage . . . to convince her [to have her tooth pulled] had the Surgeon come and pull out one of his Teeth, perhaps a decayed one, in her Majestie's [sic] Presence . . . She was hereby encouraged to submit to the Operation herself.

In the 17th century, "barber-surgeons handled teeth cleaning, using toothpicks and bits of cloth. After scraping the teeth, they swabbed them with a stick dipped in aqua fortis to whiten them. Strong water, indeed. It was actually a solution of nitric acid. Although it left teeth considerably whiter, it achieved this effect by eating away the enamel, causing the teeth irreparable damage" and hastening their decay.

Preindustrial mouthwashes also left something to be desired. The 1613 work *The English Mans Treasure* recommends swishing mouthwash of "water and vinegar." Worse yet, the "father of dentistry," Pierre Fauchard (1678–1761), advised gargling urine as mouthwash to cure toothaches, saying, "One should retain it some time in the mouth and continue its use." He was in some ways a groundbreaking dentist—for example, he pioneered new standards of prosthetics. Yet he also believed in many of the follies of his time. "He advocated bloodletting for relief of toothaches. And though not a tooth worm proponent per se, he left open the possibility." The worm theory was still popular, after all. "In 1757 an evangelical pastor, Jacob Christian Schaffer, published an exposé, *The Fancied Worms in Teeth*, debunking the tooth worm theory," in a breakthrough in dental understanding. By the 1760s, King George III's dentist Thomas Berdmore had published a book, *A Treatise on the Disorders and Deformities of the Teeth and Gums*, that "discussed the role of sugar in tooth decay, and revealed the results of his studies on the abrasive properties of the tooth powders of the day." As industrialization took off, rapid advances occurred in many areas, including dentistry. While Wynbrandt details many unfortunate practices that continued even after industrialization, the book makes the horrors of preindustrial dentistry abundantly clear.

[Read more about the Grim Old Days](#)

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