Landmarks of Tobacco Use in the United States

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When Columbus landed in 1492, natives of the West Indies offered dried tobacco leaves as a friendly gesture. On a later voyage, he and his sailors observed Native Americans inhaling smoke through both nostrils from a hollow reed as part of their religious ceremonies. Native Americans called the reed tabacum, hence the name tobacco.1 The combination of repeatedly inhaling smoke and the intense fervor of religious ceremonies often led to the development of a stuporous state or coma. In addition to smoking through reeds, natives of the West Indies also smoked a roll of dried tobacco similar to today's cigar.2 Smoking was a novelty taken back to Europe by the brave young seamen from Columbus' crews. Tobacco thus began its slow circumnavigation of the world. While it was a curiosity, smoking was not wildly embraced. The smoke was harsh; its inhalation was irritating.

Exploration of the New World involved the French, the English, the Italians and the Spanish. Tobacco use varied according to what part of the New World was encountered. For instance, Haitians practiced a form of snuffing, where unsmoked tobacco was snorted through a tube into the nasal passages.3 Natives of South America smoked small rolls of tobacco wrapped with palm leaves, suggestive of the modern cigarette. Records also suggest chewing the leaves to increase salivation and reduce hunger pains.3 Tobacco was not only smoked, it was used widely as a medicine. Jean Nicot, the French ambassador to Portugal and a leading herbalist of the era, used an extract of tobacco to treat a stomach malady of Catherine de Medici, Queen of France. De Medici was so pleased with her relief that she named the elixir after him. There is some debate whether de Medici had an ailment cured or just enjoyed snuffing. When the active alkaloid was eventually discovered, it was named after Nicot as well, in honor of his contributions to medical uses of tobacco.4 For decades it was believed that tobacco prevented or cured cancer, and tobacco poultices and extracts were used in attempts to cure virtually every known affliction.

A major advancement in the production of smoking tobacco is attributable to John Rolfe. Rolfe mysteriously acquired Nicotiana tabacum seeds from a Spanish plantation, and tobacco from these plants produced milder smoke. In contrast to the harsh and biting smoke of the strain Nicotiana rustica, N tabacum was fragrant and had a subtle, fragrant taste. The marriage of Rolfe and Pocahontas established a peace between the colonists and the Indians, enabling continued tobacco crop production. Consumer demand for Rolfe's tobacco in London was quite high, and the product from the Virginia settlement was guaranteed to sell.

Sir Walter Raleigh experimented with planting methods and methods of drying (curing) the tobacco leaf, resulting in a more pleasant smoke. These changes helped popularize the use of tobacco, especially among the wealthy. Gallants of the court carried elaborate smoking paraphernalia: tobacco boxes, carved pipes, and pipe tools. It was fashionable to manipulate the smoke by blowing rings, or putting the fume through the nose in a manner similar to many of today's smokers.1 Smoking was popular but not uniformly accepted. A most notable detractor was King James I, who wrote an extensive condemnation in 1604. His powerful "counterblaste to tobacco" ends with:

Tobacco is a filthy weed, and the custom is loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless.5

Further, King James taxed tobacco mercilessly, increasing the tariff by an astounding 4,000 percent. Tobacco tax money was used to build extensive fleets and further explore the New World. King James and Sir Walter Raleigh had innumerable differences, which eventually led to the beheading of Raleigh.

Snuff

Following its original introduction, tobacco was either smoked or chewed. Snorting tobacco, or snuffing, developed considerable popularity, especially among the French, who considered it to be the most socially acceptable form of tobacco use. Snuff boxes, rasps for producing tobacco particles, and mortar and
pestle gave way to factory-produced tobacco powders. At one time over one hundred different blends of pepper, spice, and tobacco in highly decorative wrapping paper could be purchased. For the aristocrat, a snuffbox of horn or wood simply would not do; craftsmen and miniaturists of the day flourished in the production of ornate containers from gold, silver and ivory. Debates of the merits of smoking vs sniffing raged. At the very least, sniffing was noisier.

**The Cigarette**

It is not clear how the first cigarette was invented. The Egyptians are reported to have started rolling tobacco in paper around 1832, during the siege of a Turkish city.\(^6\) Both the Turks and the Russians smoked paper-rolled cigarettes for the next few decades. French and British soldiers took the paper-wrapped cylinders back to Europe following the Crimean war (1856), and soon after cigarettes made their way to the United States.

Cigarettes were made by hand and were an expensive luxury. In the antebellum United States, tobacco was used predominantly in the form of chewing, pipe smoking, cigar smoking, or sniffing. Chewing was the mainstay, and for some companies plug was the leading product. Shortly after the War between the States, dramatic changes in tobacco growing and processing inextricably weaved cigarette smoking into the mainstream of society.

Tobaccos from Caswell County, North Carolina were canary yellow in color and locally referred to as "brights." Leaves were air-dried in large barns, aided by the temperate climate of the Carolinas and warming fires to chase away the evening chill. According to Brooks, the supervisor of a tobacco barn fell asleep due to heat from fires in the barn.\(^3\) When he awoke, he raced to put more logs on the dying embers. The resulting burst of heat resulted in 600 lb of the brightest tobacco ever witnessed. The lighter tobacco had a mild, palatable flavor, preferable to that from air-dried leaves. Flue curing was immediately developed. Curing barns were built with sheet iron covering the flues beneath, and wood fires generated the necessary heat. Despite many costly fires with loss of barn and crop, flue curing progressed. Flue curing offered another advantage in that it hastened the time of processing. The sandy soils of Caswell County and the Durham area lent particularly well to bright tobaccos, and Durham quickly became the leading tobacco center south of Virginia.

After the conflict, soldiers from rival armies mingled near Durham and created an instant market for the appealing brights. After returning home, they sent orders for the fine tobaccos from the Durham area. John Green, a proprietor of a tobacco factory thought he had been totally ransacked, but nonetheless had enough stockpiles of bright tobaccos to rebuild his fortune. Indeed, many of his orders came from Union soldiers who had used Durham Smoking Tobacco, which had a bull's picture on the label. Durham became "the town renowned the world around."\(^8\) Soils thought to be hopelessly ruined by the ravages of war were found to be adequate for bright tobacco, and the tobacco industry enjoyed a rapid resurgence following the war.

After Washington Duke was released from a Union prison, he returned to a 300-acre farm near Durham. Devastation of the land was so extensive that he was forced to sell his land and rent back several acres. Using a modest amount of tobacco present on the land, he generated enough capital to continue. He and his four sons grew, flailed, bagged and sold tobacco, carted it to town, and managed enough sales to gain a foothold in the growing tobacco industry.

One son, James Buchanan Duke, decided to undertake the large-scale manufacture of cigarettes in order to compete with the Bull factory. Skilled cigarette rollers, many of whom had learned their trade in Europe, came to Durham to toil at the labor-intensive, costly process of making cigarettes.

A young Virginia inventor, James Bonsack, devised a machine (patented 1881) which could produce an astonishing 100,000 cigarettes a day. J. B. Duke negotiated a reduced royalty for the use of machines in return for investments in overcoming the numerous mechanical difficulties associated with the machines. He recruited William O'Brian, a young mechanical genius, to maintain and troubleshoot the Bonsacks. O'Brian and Duke worked late into many nights until the numerous defects were remedied. Duke then improved the packaging of cigarettes with the design of a sliding cardboard box manufactured on site at his plant.\(^4,6\)

Reduced production costs made the Duke cigarette the cheapest available. Initially, the Bonsacks produced more cigarettes than could be sold, but following an intense marketing campaign selling at the rate of five cents per ten cigarettes, Duke sold an amazing 30,000,000 cigarettes between March and December of 1883.

Duke was an energetic man of considerable determination. Overcoming limitations of operating capital in his early years, he shrewdly developed sales of chewing, pipe and cigarette tobacco. He was fond of saying: "Tobacco is a poor man's luxury. Where else can he get so much enjoyment for his five or ten cents."\(^8\) He assumed a commanding position in the industry and forged the merger of five concerns into the American Tobacco Company in 1890. Eventually, a likeness of Powhatan, Pocahontas's father, was the symbol of the American Tobacco Company.

The American Tobacco Company fell to antitrust...
legislation in 1911, spawning many dependent subsidiarys. James "Buck" Duke died in 1923. He considered his greatest accomplishments to be the establishment of the Duke Endowment and Duke University. His rise from abject poverty to "King of Tobacco" merits special attention, even in our anti-tobacco times.

Duke brought the cigarette to all classes of people, and it was the change that changed smoking habits. Flue-cured tobacco produces a slightly acid smoke—one which is easier to inhale than the irritating alkaline smoke from air-dried tobacco. Coupled with the milder flavors of bright tobaccos, smoking became an act of repeatedly inhaling smoke into the lungs rather than merely puffing. During the Gay 90s, the cigarette grew enormously in popularity.

Drastic changes in smoking behavior were summarized by Alfred Dunhill, a leading tobacconist from Britain. "Today the ubiquitous cigarette has robbed most of us of these former glories and gripped us by the throat. Smoking has become habit, and habit, proverbially, blunts the edge of pleasure." Dunhill was aware that people who smoked cigarettes no longer basked in the pleasures of tobacco aroma, the manipulation of the pipe, the smoking paraphernalia with which Elizabethan England was so possessed. Dunhill's incisive comments predicted recognition of the addictive nature of smoking.

A tremendous boost in cigarette consumption occurred during World War I as a result of clever marketing techniques associating bravery in the front lines with smoking. In 1918, the US contracted for the entire output of Bull Durham. Soldiers went to war with cigarettes in their C-ration, and women began to smoke.

Smoke, Tar, and the Changing Cigarette

In the earlier stages of this century, the cigarette was typically unfiltered. However, manufacturers began to add filters, mainly to reduce the tobacco lost in the unsmoked cigarette butt, and to increase the appeal of smoking to women, who were thought not to enjoy the soggy end of unfiltered cigarettes. The first filters were a simple column of cellulose acetate, chosen because of its moderate filtering capacity, low resistance to flow, and its lack of effect on the flavor of the smoke.

After the Surgeon General's report of 1964, public interest in reducing tar deliveries of smoke increased, and the industry responded by introducing a variety of filters. Tar is a measure of the mass of the particles in the smoke aerosol. Tar delivery is a function of burning temperature, wrapping paper porosity, tightness of the packing of the tobacco, tobacco additives, and the length of the unburned tobacco column. Tar delivery can be reduced by several means, including changing the additives and humectants of the tobacco, and altering porosity of the filter material. A notable example is the high-resistance cellulose acetate filter combined with perforated ventilating holes. The perforations introduce outside air into the smoke drawn through the filter, thereby diluting the puff.

Tar is a measure of material delivered to the filter during machine-smoking in the Federal Trade Commission laboratory. In use, the smoker ultimately controls tar delivery. Many variables confound the estimation of tar delivery to the lower respiratory tract, including puff size, puff frequency, depth and volume of inhalation, and duration of breath-holding.

SUMMARY

The idea of inhaling smoke from cigarettes is historically new, actually less than a century old. Consumption of tobacco has changed from chewing tobacco and pipe smoking to smoking cigarettes; smokeless tobaccos are growing tremendously in popularity. The modern smoker is confronted with a highly engineered, complex composite of specially designed paper, tobacco, tobacco additives, and a panoply of filters, a far cry from the hollow reed Columbus saw. Tobacco has been glorified to as a form of revenge by native Indians. There is little similarity between ceremonial use of tobacco by the Indians and the robotic puffing of the modern smoker. The real culprit is the cigarette.

REFERENCES

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