The Dry Martini: Chemistry, History, and Assorted Lore*

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Abstract: In the opinion of countless authors, thinkers, statesmen, and connoisseurs, the martini is America's favorite *apéritif*. Famous martini quotes; celebrity martini drinkers; movies, books, and songs; the martini and alcohol in chemical education; the 1999 Canadian bioanalytical study of the antioxidant activities of martinis in the *British Medical Journal*; the standardization of the martini; brief histories of gin, vermouth, and the martini; martini-drinking presidents; the dryness of the martini; and the place of the drink in American society are presented.

In the opinion of countless authors, thinkers, statesmen, and connoisseurs, the martini is America's favorite *apéritif*. John Doxat proclaimed it "the most celebrated drink in the civilized world" [1a] and "the king of cocktails" [1b]. Writer Bernard De Voto (1897–1955), who called it "the supreme American gift to world culture" [2a], described the purported sensitivity of the drink when he wrote,

> You can no more keep a martini in the refrigerator than you can keep a kiss there. The proper union of gin and vermouth is a great and sudden glory; it is one of the happiest marriages on earth and one of the shortest-lived. The fragile tie of ecstasy is broken in a few minutes, and thereafter there can be no remarriage [3].

This sensitivity is echoed by W. Somerset Maugham's (1874–1965) words, quoted by his nephew Robin:

> Martinis should never be shaken. They should always be stirred so that the molecules lie sensuously on top of each other [4].

Even that pungent, controversial sage of Baltimore, crusty old curmudgeon H(enry) L(ouis) Mencken (1880–1956), who rarely said anything good about *anything*, praised it as "The only American invention as perfect as a sonnet" [2a]. And at the height of the Cold War, when served a particularly potent sample, Nikita Sergeevich Khrushchev (1894–1971) admitted that it was "The U.S.A.'s most lethal weapon" [2a]. Also, a Cold War acronym for the martini was ICBM—for Ice Cold Beefeater Martini—an implicit comparison to Inter-Continental Ballistic Missile—in reference to the lethal quality of the drink [5]. Another tribute to its potency and sexiness is found in a poem allegedly attributed to Dorothy Parker (1893–1967):

> I like to have a Martini,
> Two at the very most.
> After three I'm under the table,
> After four I'm under my host!

And Ogden Nash (1902–1971) [6], wrote:

> There is something about a Martini,
> A tingle remarkably pleasant;
> A yellow, a mellow Martini;
> I wish that I had one at present.
> There is something about a Martini,
> Ere the dining and dancing begin,
> And to tell you the truth,
> It is not the vermouth—
> I think that perhaps it's the gin [7].

Until the 1940s vermouth had a yellowish tint, which was then eliminated by improved stabilization and filtration processes so that David Acheson, son of Dean Acheson (1893–1971), Harry Truman's Secretary of State, preferred martinis because he "liked drinking something transparent after all the murky transactions of statecraft" [9].

A Famous Martini Quote

"I must get out of these wet clothes and into a dry martini," has been attributed to Alexander Woollcott (1887–1943) [9], but it may have first been said by Robert Benchley (1889–1945) or another member of New York's literary coterie, the Algonquin Hotel's Round Table that flourished during the 1920s and 1930s [2b]. Recent research, however, has shown that the actor Charles Butterworth uttered the words, "You ought to get out of those wet clothes and into a dry martini" in the 1937 film *Every Day's a Holiday*. Because Mae West wrote the screenplay, she sometimes receives the credit for this, one of the most famous sayings about the martini; however, director Billy Wilder told a *Los Angeles Times* columnist that Butterworth first spoke the line himself when he had fallen into a pool at the Garden of Allah, a Hollywood resort.

Celebrity Martini Drinkers, Movies, Novels, and Songs

In drinking martinis we're in good company. Celebrity martini imbibers include F. Scott Fitzgerald (1896–1940); W. C. Fields (1880–1946) [10]; Ernest Hemingway (1899–1961), who later forsook martinis for daiquiris [1c]; Dean Martin (1917–1995); Frank Sinatra (1915–1998); and Humphrey Bogart (1899–1957), whose last words supposedly were: "I should never have switched from scotch to martinis" [11]. The martini figures prominently in hundreds of motion pictures. For example, Billy Wilder's *The Lost Weekend* (1945) starring Ray Milland and Jane Wyman, a stark, powerful drama that chronicles the descent into hell of an alcoholic writer, depicts the drink in a negative light. And for a positive, but now politically incorrect, spin there's the series of *The Thin Man*

* Adapted from a lecture, "Shaken or Stirred?"—a fund-raising "martini tutorial" given as part of the series "Parties for the Parkway" presented by the San Joaquin River Parkway and Conservation Trust for the San Joaquin River Parkway, September 15, 2000, Clovis, California (Figures 1–7).

Figure 1. George B. Kauffman with martini at *hors d'oeuvres* table. Photograph by Laurie M. Kauffman.

films that began in 1934, starring William Powell and Myrna Loy as Dashiell Hammett's hard-drinking husband-and-wife sleuths Nick and Nora Charles, modern, sophisticated, and smart, like the martini itself. In W. S. Van Dyke's academy-award-nominated first film in this series Nick tells a bartender, "A Manhattan should be shaken to a fox trot, the Bronx to a two-step, but a dry martini must always be shaken to a waltz" [8].

In Joseph L. Mankiewicz's multiple Oscar winner *All About Eve*, Bette Davis utters the memorable lines, "I'd like a martini, very dry…. Fasten your seat belts, it's going to be a bumpy ride." And in Oscar-winning director Mike Nichols' 1967 film, *The Graduate*, seductive Mrs. Robinson, played by Anne Bancroft, orders a martini at the Taft Hotel to begin her affair with Benjamin, played by Dustin Hoffman. Also, Robert Altman's unusually farcical film *M*A*S*H* (an acronym for Mobile Army Surgical Hospital) (1970), later made into a television series originally broadcast from September 17, 1972 to September 19, 1983, featured many martini-drinking scenes.

The martini is featured prominently in many novels, such as Ernest Hemingway's *The Sun Also Rises* (Scribner's: New York, NY, 1926) and *A Farewell to Arms* (1929). Elam Harnish, the hero of Jack London's *Burning Daylight* (Macmillan: New York, NY, 1910), is probably the greatest martini-drinker in American fiction, while Brian Kelly, the hero of John Leonard's *The Naked Martini* (Delacorte: New York, NY, 1964) is a close second. Other American authors who mentioned the drink in their work include Sinclair Lewis, John Dos Passos, John O'Hara, and J. D. Salinger, while British authors include W. Somerset Maugham, Noel Coward, and Graham Green. Jack London even had his martinis prepared in bulk by an Oakland bartender and shipped to Wolf House, his home in Sonoma's Valley of the Moon [8].

Among songs involving the martini, we should mention songwriter, entertainer, lecturer, and mathematician Tom Lehrer's (b. 1928) spoof "Bright College Days," which I discovered during my own graduate school days:

> Hearts full of youth, hearts full of truth,
> Six parts gin to one part vermouth.

And Frank Loesser's song, *I Believe in You*, in his 1962 musical *How to Succeed in Business without Really Trying* contains the lines:

> You have the cool, clear eyes of a seeker of wisdom and truth,
> Yet there's the slam bang tang reminiscent of gin and vermouth.

An American Cultural Icon

The cone-shaped stemmed martini glass with its obligatory olive is a basic American symbol as universal as the cowboy, blue jeans, or Coca-Cola. It is instantly recognizable around the world as an international symbol identifying bars and other drinking establishments. It has even been used as the theme of works of art by artists of the stature of Claes Oldenburg. And the martini, the drink of elegant simplicity, was the favorite drink of German-born American architect Ludwig Mies van der Rohe (1886–1969), whose own elegant simplicity epitomized the International Style of architecture and who was known for his pithy comment, "Less is more" [12].

Martini Jokes and Cartoons

The martini is the centerpiece of countless jokes, many of which cannot appear in a scientific journal. Whenever a drink is specified in a joke, it is almost invariably a martini. Martini cartoons also abound. No less than 92 martini cartoons appeared in that most sophisticated of magazines, *The New Yorker*, from 1949 to 1997.

Tutorial versus Symposium. The San Joaquin River Parkway and Conservation Trust has chosen to call this presentation a "tutorial," a term which my trusty dictionary defines as "a class in which a tutor gives intensive instruction in some subject to an individual student or a small group of students" [13a]. As I look out into a sea of faces and realize that you haven't come here for "intensive instruction," I prefer the much more appropriate term "symposium," which the same dictionary defines as "a convivial meeting, usually following a dinner, for drinking and intellectual conversation"—literally, a "drinking together" [13b]. The Greek prefix συν- has the same function in English as *co-* and is used in compound words with the meaning of "with" or "together." It occurs in familiar words such as synthesis, synchronize, synoptic, synapse, and synagogue, and in chemistry in the *syn-* isomers of aldoximes, in which the hydrogen and hydroxyl groups are on the same side of the plane of the double bond. The remainder of the term is derived from πινυ (drink) and σιον (a composite noun suffix).

The Martini and Alcohol in Chemical Education. I feel that you're entitled to know the tortuous path that brings me before you tonight as a purported authority on America's *apéritif par excellence*. Sometime in 1966, a month or two after my first book appeared, I was perusing my dog-eared copy of one of my favorite reference books, David Embury's *The Fine Art of Mixing Drinks*, where I encountered the following passage:

> I have asked dozens of my friends how much difference they thought there was between the alcoholic strength of a 3-to-1 and a 7-to-1 martini. Two classes of people—chemists and accountants (who have any familiarity with liquors)—give the correct answer: "practically none." All

> others, of course, reply that 7 to 1 is approximately twice as strong [14a].

The correct answer is, of course, counterintuitive. It's not the obvious answer that someone would give "off the top of one's head." The factor that most persons tend to forget is that in making the martini stronger, the gin, which is 86 proof or 43 percent alcohol, is replacing not water, which is zero percent alcohol, but vermouth, a fortified wine, which is 38 proof or 19 percent alcohol. Therefore, as we replace vermouth with gin, the resulting martini does indeed become stronger, gin being stronger than vermouth—but nowhere as rapidly as we might think.

In solving numerical problems, many students merely memorize formulas and manipulate numbers by rote to arrive at an answer without ever asking themselves if the answer is reasonable. As chemical educators, we are forced to groan over impossible answers by unthinking students, for example, 4.27×10^{21} g—a weight comparable with that of the entire earth—for the weight of a single chlorine molecule, produced by multiplying, rather than by dividing, the gram-molecular weight by Avogadro's number (6.02×10^{23} molecules/mole). For this reason, most science teachers, including me, will insist that students acquire the habit of asking themselves if the answer makes sense before they go on to the next problem. Yet this practice does not seem to apply in the case of Embury's proposed martini question.

My *Journal of Chemical Education* Martini Note

Being intrigued with this apparent cognitive dissonance, I made some calculations and wrote a short note for the *Journal of Chemical Education* using the martini as a means of enlivening solution concentration problems that are part and parcel of any introductory chemistry course [15]. I suggested asking the class how many times stronger in alcoholic content a "strong" martini, for example, 15:1, is than the standard 3:1 variety. When students make the actual calculations, they receive a real surprise (Figure 2). As the figure shows, the alcoholic content of the martini rises from 37.0 percent for the 3:1 drink to 42.8 percent for the 100:1 drink and to 43.0 percent for pure gin. In other words, the increase from the two extremes is only 6.0 percent.

In addition to increasing interest in what were previously routine problems, these calculations also should impress on students the fact that the intuitive, "obvious," prima facie answer is not *always* the correct one and that in many cases detailed quantitative calculations may yield results that at first may seem contrary to "common sense."

I was surprised by the numerous requests for reprints that I received from all over the world (Belgium, Canada, Czechoslovakia, Finland, Spain, etc.)—many more than for some of my more serious and substantial articles. It was then that I first realized how seriously martini connoisseurs take their favorite libation, for I was taken to task by one reader, who wrote,

> While I found this to be of some interest as a conversation piece, I must most regrettably state that I feel the research involved was something far less than we have come to expect from a periodical of the stature of the *Journal* [16].

He then proceeded to criticize in great detail my note in "three areas [that] have caused me some grave concern," viz., the Proof Factor, Melting Ice Factor, and Drinker Classification (subdivided into Foreign Objects Included, Speed of Drinker, Number of Ice Cubes, and Room Temperature). However, he concluded on a friendlier note,

> I am glad, of course, that you have broken the barrier in this area of essential research, but could have hoped that the initial effort would have been more detailed [16].

The Canadian Bioanalytical Study of the Antioxidant Activities of Martinis

Through subsequent years scientists in general and chemists in particular have demonstrated a great interest in the martini as evidenced by the number of items that have appeared periodically in Ken Reese's "Newscripts" feature on the last page of *Chemical & Engineering News*, the weekly magazine received by every one of the more than 161,000 members of the American Chemical Society, the world's largest organization devoted to a single science [17–23].

On December 18, 1999, a full scientific article, complete with abstract, introduction, methods, tables, results, discussion, acknowledgments, footnotes, and references, titled "Shaken, not stirred: bioanalytical study of the antioxidant activities of martinis," appeared in the *British Medical Journal* [24]. Authored by six scientists at the Department of Biochemistry, Faculty of Medicine and Dentistry, University of Western Ontario, London, Ontario, Canada, it instantly received widespread media coverage in newspapers, magazines, television, and radio.

In view of the finding that moderate consumption of alcoholic drinks seems to decrease the risks of developing cardiovascular disease, stroke, and cataracts, possibly by the antioxidant action of their alcohol, flavonoid, or polyphenol contents, the Canadian researchers found that shaken martinis prepared according to Secret Agent 007 James Bond's instructions, "Shaken, not stirred," were twice as effective in deactivating hydrogen peroxide and therefore had stronger antioxidant properties than the stirred variety. The 2:1 martinis were assayed for their ability to quench luminescence by a procedure in which the peroxide reacts with luminol bound to albumin, and a student's *t* test was used for statistical analysis. The researchers, however, were unable to explain these results. Of the martini's two ingredients, vermouth, had more antioxidant effect than gin, but the combination of the two ingredients had a greater (synergistic) effect than either separate ingredient. Any antioxidant contributions from olives were not tested.

Electronic letters—some serious some humorous—poured in to the *BMJ* from a variety of readers [25]. Here are some typical responses:

> My Bet is that it's the exercise and diet that contributes the most to Bond's good health. And I ask myself the question what this article is doing in a serious journal like *BMJ*.

> No doubt further studies are needed to evaluate the data, and I am sure that the *in vivo* section will not fail due to lack of volunteers.

> Actually, the James Bond of the novels prefers "stirred not shaken" because shaking bruises the gin [I have never been able to learn what "bruises" means as applied to gin or vermouth. Actually, both beverages are robust products that are not delicate in the least —GBK].

The Martini as an Alcoholic Solution

Although aficionados of the manhattan, old-fashioned, whiskey sour, or daiquiri may disagree, the Martini is generally considered to be the most popular American apértif. Its popularity may be used to good advantage in enlivening solution concentration problems.

The class is asked to guess how many times stronger in alcoholic content a "strong" martini, e.g., 15:1 is than the standard 3:1 variety. Typically spontaneous student responses vary from twice as strong to five times as strong. Upon making the actual calculations, the students receive a real surprise (see table). In addition to increasing interest in what were previously routine problems, these calculations also serve to impress upon students the fact that the intuitive, "obvious," *prima facie* answer to a problem is not always the correct one and that in many cases detailed quantitative calculation may yield results that at first may seem contrary to "common sense."

Ratio by Volume Gin:Vermouth	%Alcohol by Volume[a]	Ratio by Volume Gin:Vermouth	% Alcohol by Volume
3:1	37.0	10:1	40.8
4:1	38.2	15:1	41.5
5:1	39.0	25:1	42.1
6:1	39.6	50:1	42.5
7:1	40.0	100:1	42.8
8:1	40.3	Pure Gin	43.0
9:1	40.6		

[a] In the formula $\%C_2H_5OH = \frac{(G \times P_G/2) + (V \times P_V/2)}{G+V}$ where G = parts by volume of gin, V = parts by volume of Vermouth, P_G = proof of gin (86º), and P_V = proof of vermouth (38º), the 1/4 to 1/3 decrease in alcoholic content caused by melting ice has been neglected. If the density of alcohol is given, calculations can also be made in terms of molarity; if the inert ingredients are assumed to be water, calculations can be made in terms of mole fractions.

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Figure 2. Alcoholic Content of Different Strength Martinis (Kauffman, G. B. *J. Chem. Educ.* **1967,** *44* (4), 199). Reproduced with permission.

> To my recollection, 007's tipple was, in fact, a vodka martini [26].
>
> The study is certainly clear on the health benefits. Shaken martinis have twice the antioxidant effect of stirred martinis, so those of us who drink our martinis stirred should obviously drink twice as many of them to enjoy as healthy a life as Mr. Bond.
>
> It is amazing how easy [it] is to publish any research no matter how crazy it could seem when it is made in the so called "first world"…. When I tell things like that to medical students, they couldn't believe that somebody have [*sic*] enough time and resources to spend on these matters [from a professor in a developing country].
>
> Perhaps I should suggest you to investigate effects of Champagne…[from a hospital pharmacist—a Frenchman, of course].

A story on the Canadian researchers' article appeared in the December 17, 1999, *Fresno Bee* titled "For a healthier martini, shake, don't stir." I responded to this local report with a letter to the editor, which appeared on Christmas, December 25, 1999 in *The Bee* under the title, "Stirred, not shaken" [27]. I pointed out, in part:

> Ian Fleming was wrong…! As any bartender will tell you, although shaking produces a colder cocktail more quickly than stirring, with some cocktails "eye appeal" is paramount. Such a suave aesthete as 007 should know that a substantial part of the martini's charm is its clear, almost scintillating translucence. A stirred cocktail will remain clear, while a shaken one will be cloudy or muddy, especially if vermouth or other wine is an ingredient. On the other hand, drinks containing fruit, eggs, cream, or any other ingredients difficult to blend should be shaken.
>
> So while the Canadian researchers have reported that shaken martinis have more antioxidant power than stirred ones, I'll continue to stick to Vitamin E as my preferred antioxidant. Incidentally, their weak martinis—2 gin to 1 vermouth—would hardly appeal to the hard-drinking James Bond or any other martini aficionado, for the standard drink is 3:1 or preferably 4:1 [27].

Although the Canadians seem to have thought of everything, any scientific report should be considered provisional and subject to additional verification or modification. For example, in 1968 Russian chemist Boris Derjagin reported a mysterious form of water with weird properties that he called "polywater." After many other chemists checked his work—and this is the way that science advances—it was found that the supposedly new form of water was merely ordinary water contaminated with ionic substances. So, I'll reserve judgment on the Canadian results until they're confirmed by other independent laboratories—a sort of scientific second opinion.

A Brief History of Gin

Although the process of distillation was known to the Greek alchemists of Alexandria, and apparatus for carrying out the process is described in some of the earliest known chemical treatises, such as the manuscripts of Zosimos of Panopolis in Upper Egypt, who flourished ca. A.D. 300 [28], condensate cooling, which dates from about the 12th century A.D., was the key to the discovery of alcohol, known as *aqua vitae* or *aqua ardens* [1c, 29]. Early alcohol stills are described in the two-part monograph (1500–1507) [30] by Hieronymus Brunschwig (ca. 1430–1512/13) [31a] of Strassburg, and distilled beverages were first used for medicinal purposes. The oldest recipe in Dutch for gin (*aqua juniperi, genererbessenwater*) is found in a book of 1551 [32] by Adam Lonicer (or Lonitzer) (1528–1586) [31b].

Gin is a flavored, distilled liquor made from purified spirits usually obtained from a grain mash with the juniper berry as its main flavoring ingredient [33a]. Despite Lonicer's recipe, its origin is usually attributed to Franciscus Sylvius Dele Boë (1614–1672) (Figure 3) [34], Professor of Medicine at the University of Leiden (1658–1672) in Holland and one of Europe's outstanding teachers and advocates of scientific medical research, whose main contributions to science were in anatomy and medicinal chemistry. He was one of the first to introduce ward instruction in medical education, and he instigated the construction of what may have been the first university chemistry laboratory. He distilled juniper berries with alcoholic spirits to prepare a cheap medicine with the diuretic properties of juniper-berry oil.

One of the first to defend William Harvey's theory of the circulation of the blood (1628) and to demonstrate it on dogs, Sylvius was the founder of the 17th-century iatrochemical school of medicine. He applied the principles first proposed by Paracelsus (1493–1541) and continued by Johannes (Joan) Baptista van Helmont (1579–1644) to medicine, thus shifting medical emphasis from mystical speculation to a rational application of the universal laws of chemistry and physics. In his application of chemistry to the pathology, physiology, and treatment of disease, Sylvius proposed that the most important normal and pathological bodily processes could be conceived in perfect analogy to processes in the chemical laboratory and could be explained by fermentation, effervescence, and putrefaction. He recognized the presence of salts in living matter, and he considered them to be the result of an interaction of acids and bases (what we now call neutralization). Therefore he postulated that chemical imbalances in the body result from an excess of acid (acidosis) or base (alkalosis) in the blood, and he devised drugs to correct these conditions. In 1641 he discovered the deep cleft, now known as the Sylvian fissure, separating the temporal, frontal, and parietal lobes of the brain.

The name of Sylvius' beverage comes from the French name for the juniper berry (*genièvre*), altered by the Dutch to *genever*, and abbreviated by the Dutch to "gin" [14c; 33a]. It was introduced to England by soldiers returning from the Low Countries and was extremely popular during the reign of Great Britain's King William III (1689–1702) of the Dutch House of Orange and his Stuart consort Queen Mary (1662–1694). By the 18th century, its excessive consumption by the lower classes created a social problem, as depicted in William Hogarth's engraving "Gin Lane" (1750–1751) (Figure 4). Beginning with 1736 came the first of the so-called Gin Acts, aimed at keeping the inexpensive beverage from the majority of the population, while simultaneously raising revenue for the government [1e]. Nevertheless, during the 19th century, the problem of runaway intoxication among the *hoi polloi* persisted, and in his novels Charles Dickens (1812–1870) mentions the pubs known as "gin palaces" [1e].

Dry English or American gins have more added flavorings than Netherlands gins, also called Holland gins, *geneva, genever*, or Schiedam (for a distilling center near Rotterdam), and each distiller uses a secret recipe, including, in addition to juniper berries, botanicals such as angelica, orris, and licorice roots, lemon and orange peels, cassia bark, anise, caraway, cardamom, coriander, and fennel. Dutch gins are too distinctive in taste to combine well with other beverages and are usually served straight or with water [35]. Toward the end of the 19th century, leading London distillers began to produce a new unsweetened gin called "unsweetened," then "dry," and then "London dry." This was drunk on Royal Navy ships with a dash of Angostura medicinal bitters ("pink gin"); while mixed with quinine water, it served as a specific against malaria in many parts of the far-flung British Empire and survives today as "gin and tonic." The drier types of gins may be served straight or combined with other ingredients to prepare cocktails such as martinis and gimlets and "long drinks" such as the Tom Collins [36]. Although gin came to America with the first Dutch settlers, the United States was not a gin-drinking country until the 20th century, when preprandial cocktails became customary in about 1910.

A Brief History of Vermouth

According to John Doxat, in the early 17th century the secret of vermouth (*Vermutwein*) was brought by a Piedmontese Italian identified only as Signor Alessio from Bavaria to the French royal court, where its name was Gallicized to *vermout* [1f]. This maceration of wormwood flowers (the bitter herb of the genus *Artemisia; Artemisia absinthium* is the herb traditionally used in absinthe), an improvement on earlier vermifuges (medicines used to expel worms or other animal parasites from the intestines), failed to appeal to the Parisian public, and so France lost the opportunity of becoming the original home of vermouth.

Vermouth is often said to derive from the legendary potion invented by Hippocrates of Cos, the father of medicine (ca. 460 B.C.–ca. 377 B.C.), and in his memoirs Alessio called his discovery *vinum Hippocraticum,* the name used for it by the ancient Romans. Because intestinal parasites were an endemic disorder and the search for specific remedies against them continued through the ages, the medicinal properties of essence of wormwood were well known to primitive medieval medicine. Thus Alessio's *Vermutwein* was probably a rediscovery or a refinement of a very old well-known drink. In his diary entry for January 26, 1663, Samuel Pepys (1633–1703) wrote, "Up and by water with Sir W. Batten to White Hall, drinking a glass of wormwood wine," and in 1678 Leonardo Fiorvanti wrote, "Vermouth is an aid to the digestion; it purifies the blood, induces sound slumber, and rejoices the heart" [1f].

The oldest established commercial producer of vermouth dates from 1757, but the true founding of the modern vermouth industry dates from 1840, when King Carlo Alberto

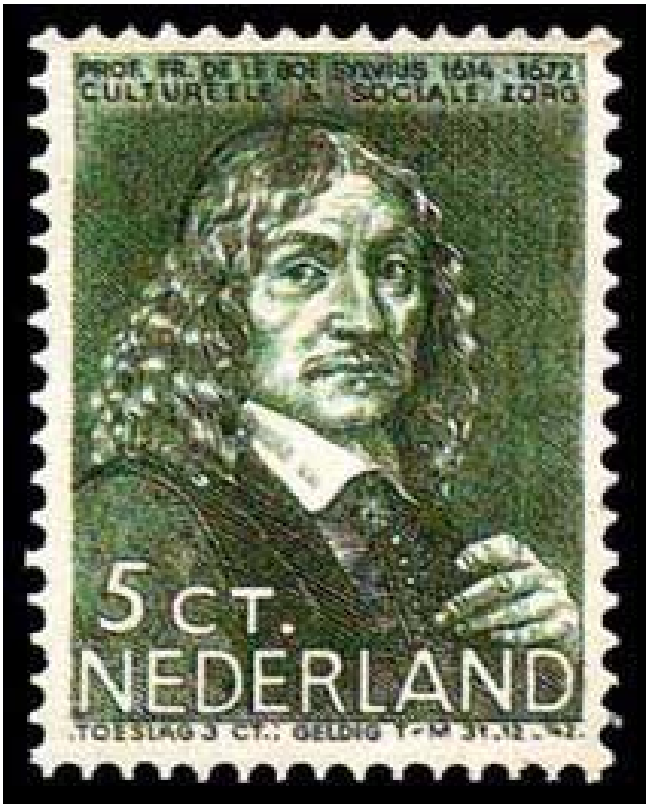

Figure 3. Francisus Sylvius Dele Boë (1614–1672), pictured on a stamp, Netherlands, 5 c, issued June 1, 1937, Scott Catalogue No. B95 (from Heilbroner, E.; Miller, F. A. *A Philatelic Ramble through Chemistry;* Wiley-VCH:New York, 1998, p 23). Courtesy, Foil A. Miller.

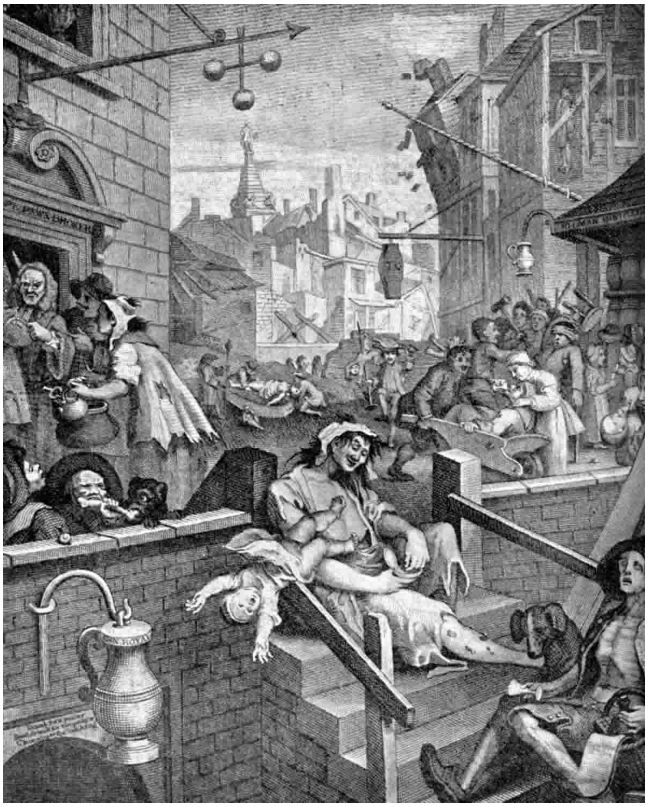

Figure 4. William Hogarth's engraving, "Gin Lane" (1750–1751).

of Sardinia–Piedmont (1798–1849) enforced the first rigorous quality control of its production in Turin, the world's vermouth capital. The firm now known as Martini & Rossi received the first license. Vermouth was historically the traditional red variety (*rosso*), slightly sweet with a mildly sharp after-taste, but around 1800 a dry vermouth made its appearance in the Marseilles region of France. This white-wine-based fortified drink, now flavored with as many as forty aromatic herbs and flavorings such as juniper, cloves, quinine, orange peel, nutmeg, and coriander [33b], is known as French vermouth to differentiate it from the older Italian variety. Both varieties are used as *apéritifs*, and French vermouth is used as in martinis, while Italian vermouth is used in manhattans. The first shipment of French vermouth to the United States was carried to New Orleans by the "Clairborne," a ship commanded by Captain Charles Warham in 1851, but the wine did not become popular until the 1880s [2c].

History of the Martini

Who first invented the martini and where and when? Like many other aspects of martini lore, there is no general agreement among different authorities. Here are several uncorroborated stories, which are more in the nature of myths.

Jerry Thomas, a bartender at the Occidental Hotel bar on Montgomery Street in San Francisco, invented the drink in about 1860 for an unknown traveler who wanted a refreshing drink. The traveler expressed his satisfaction with the new concoction and headed for nearby Martinez, a town 26 miles north of San Francisco. So Jerry named the new drink after that town [22]. In a variant of this tale, the traveler's direction was reversed. In Martinez, according to this account, "they believe that he was heading for San Francisco and the drink was first mixed in *their* town" [2d].

According to Ken Reese [22], Jerry included the recipe in his 1862 book [37]:

> one dash of bitters, two dashes of maraschino, one pony of Old Tom [slightly sweet] gin, one wineglass of vermouth, two small lumps of ice. Shake up thoroughly and strain into a large cocktail glass. Put a quarter of a slice of lemon in the glass, and serve [18].

Actually, this recipe does not appear in the 1862 edition; it is not given until the 1887 edition [2e]. Would that this were the only inconsistency in the story [38]!

Before proceeding to a second account, let the authoritative scholar Lowell Edmunds, professor of classics at Rutgers University and author of what I consider the best documented book on the martini [2], dispose of the Martinez story in his own first-person experience, once and for all.

> Folklore associates the origin of the name "Martinez" with Martinez, CA.…[The stories] are nothing but folklore. Unfortunately, journalists and authors of web pages regularly repeat these stories as if they might be true or might at least deserve some serious thought.
>
> In order to put the matter to rest, I should like to tell the following true story. Once upon a time in the early 1980s, I was traveling north from San Francisco to the gold country. When I reached Martinez, I was thirsty and went into a bar for a drink. I ordered a Martini and placed a thick wad of bills on the bar, in order to show that I would pay anything for this drink. The bartender said, "What?" I repeated,

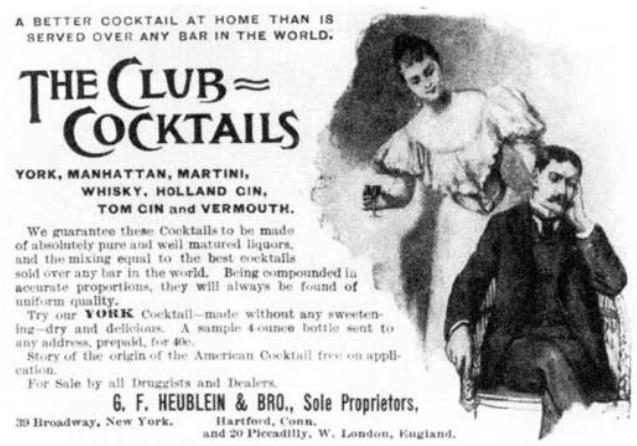

Figure 5. Wife administers cocktail to fatigued husband. Heublein advertisement from *Puck*, December 12, 1894, 300.

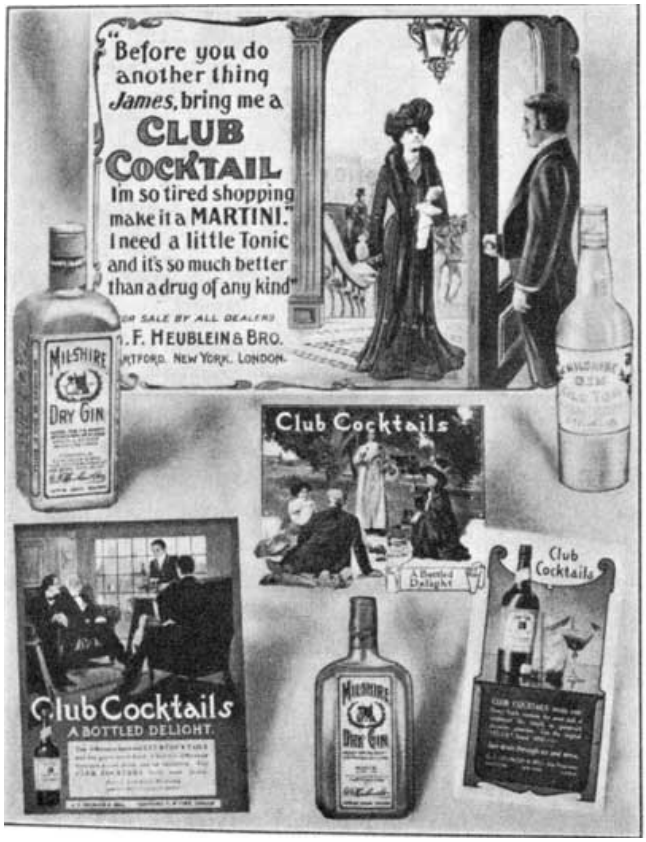

Figure 6. The martini as a high-status drink of the upper class. Page from a Heublein brochure, about 1900.

> "Martini." Again, he said, "What?" I replied, "Martini—it's made with gin and vermouth." He said, "I have never heard of that drink and neither has anyone else in Martinez. It has never been served here. So I can't make one for you" [5].

Obviously, "historical" martini stories must be taken with a kilogram of sodium chloride.

Another account is as follows: "The martini was probably invented during the decade following the end of the U.S. Civil War. For several decades it was called the martinez after Martinez in the San Francisco area. The first known recipe occurs in O. H. Byron's 1884 book [39], which describes the martinez as a manhattan made with gin instead of whiskey, while Thomas Stuart's 1896 book [40] omitted the gum syrup (sugar syrup), substituted Plymouth (dry) gin for the previous Old Tom (sweetened) gin, and substituted French (dry) vermouth for Italian (sweet) vermouth in a drink that he called a Marguerite, which approximates the modern dry martini. The drink was first spelled martini in print in 1888 in Harry Johnson's *New and Improved Illustrated Bartender's Manual* [41]. The name "martini" had edged out "martinez" by the turn of the century [20].

A third account: the martini is universally recognized as an American invention (It is a variety of cocktail, and cocktails originated in the United States during the 19th century and became especially popular during the time of the Volstead Act (18th Amendment to the U.S. Constitution, ratified January 16, 1919) when various ingredients were added to disguise the taste of bootleg booze such as "bathtub" gin. Other countries, however, have entered claims into the register of myths as to the martini's origin. For example, the British claim that the drink has a kick similar to the Martini & Henry rifle used in their army during the 1880s. As I have already mentioned, the Italians trace the name to Martini & Rossi, the first firm to manufacture licensed (sweet, *rosso*) vermouth. And the Germans ascribe its invention to the minor 18th-century composer J. P. Schwarzendorf, who adopted the surname Martini—a myth that appeared on the World Wide Web [8].

Finally, John Doxat calls the claim that Jerry Thomas invented the DRY martini "fallacious [1g]." He admits that Jerry invented "a *Martinez* cocktail—subsequently corrupted to 'Martini' by some writers—but it bears no resemblance to a Dry Martini." Instead, he insists that the dry martini did not exist until the twentieth century.

Instead, he relies on the reminiscences of the head bartender of the Savoia Majestic Hotel in Genoa, identified only by his first name Luigi to relate the following tale. In 1910 Martini di Arma di Taggia, head bartender at New York's Knickerbocker Hotel, told 70-year-old John D. Rockefeller, "I have something special for you." The drink contained equal parts of London dry gin and dry vermouth, ice, a dash of orange bitters, the squeezings of a sliver of lemon rind, and a green olive impaled on a cocktail stick. John D. said, "We'll have to call it Martini's cocktail; no, the Dry martini!" [1h].

This last story is inconsistent with the fact that by 1894 a Heublein advertisement for martinis and other bottled "club cocktails," depicting a wife administering a cocktail to her fatigued husband, appeared in a popular English magazine [2i, 42] (Figure 5), and about 1900 a Heublein brochure (Figure 6) [2j] confirmed the fact that bottled dry—that is, nonsweet—martinis were available commercially and had become a high status drink imbibed by the upper classes, the "epitome of sophistication" [43]. Therefore I contacted Lowell Edmunds. He replied, "The Rockefeller in question was a teetotaler. The story is hogwash, like much other Martini lore" [44]. In his book Edmunds concludes, "In the end, it must be admitted that no one knows who made the first Martini" [2f].

The Standard Martini

Martini guzzlers view their potation with such an almost religious reverence that they incessantly search for the Holy Grail of the ideal martini; therefore it was inevitable that a standard of perfection was proclaimed against which all

martinis should be judged. On September 29, 1953 a group calling itself the Lower Montgomery Street Olive or Onion Society submitted the results of its martini tastings to a panel of three hotel men at Ricky's Town House on San Francisco's Van Ness Avenue. The panel chose a drink of three parts of gin and one part of Cresta Blanca white vermouth, and the Cresta Blanca Wine Company used the society in its advertising for the next five years [2g].

A more ambitious and scientific standard was developed by Bertram Stanleigh of the American Standards Association as an in-house joke that was approved on August 31, 1966 and reprinted and copyrighted in 1974 [2h, 18, 23]. The ASA document [45], replete with the dogmatic opinions and prejudices of the true believer, including nomenclature, sizes, ingredients, proportions, mixing methods, and test procedures, parodied the technical style of the association's publications. It's too long to quote here in its entirety, but because it is not available to the general public, I'll give you some idea of its flavor with an excerpt [18]:

Dry Martini: A cocktail made with English or American dry gin of at least 86 proof and dry vermouth, preferably French in origin, in accordance with requirements of this American Standard.

Gibson: An unpardonable form of perversion. See Onion Soup [46].

Lemonade: A term applied to drinks which have been subjected to the peel of a lemon. There is no place for the rind of any citrus fruit, or its oils, in an American Standard dry martini.

Onion Soup: the unholy abomination produced by the introduction of one or more pickled onions into a dry martini cocktail.

Rocks: the solid state of H_2O on which an American Standard dry martini is never served [47].

Vodka: A distilled alcoholic beverage made originally from potatoes, but now encountered in grain alcohol versions. It may be clean, palatable, and nonlethal, and when encountered in this form, is a fitting accompaniment for fresh caviar. It is never employed in a dry martini.

2.1 Basic Nomenclature: The American Standard dry martini shall come in the following three sizes:

Regular—not less than 3.5 oz.

Large—not less than 5 oz.

Double—not less than 7 oz.

3.1 General: Only the following three ingredients shall be used in the preparation of the American Standard dry martini.

Gin

Dry vermouth

Olives

3.3.1 Use of Vermouth: The employment of vermouth in an American Standard dry martini shall not be mandatory, provided no other ingredient is employed as a substitute.

3.4 Olives: While the use of olives is not encouraged, nothing in this specification shall be construed to mean that the inclusion of an olive will not be accepted, provided it conforms to Table 1 and subparagraphs 3.4.1 and 3.4.2.

The Drink of Presidents

Because everyone agrees that the martini is an American invention, it's not surprising that our nation's leaders have had a predilection for the drink. Herbert Hoover (president from 1929 to 1933) seems to be the first of our presidents who was a martini drinker:

From the 1930s onward, he drank martinis ritualistically ("stirring them to the right"), insisting on a larger glass late in life when his doctor limited him to one. The cocktail hour was his favorite time: "the pause between the errors and trials of the day and the hopes of the night" [2k].

Other martini-drinking presidents were Richard M. Nixon (president from 1969 to 1974): "If he is a connoisseur of anything, it is martinis. He is very particular about the brand of gin—he prefers Beefeater—and the way it's mixed" [2k]; Gerald R. Ford (president from 1974 to 1977): He "always had two large martinis before meals and two scoops of butter pecan ice cream for dessert" [2k]; and George Bush (president from 1989 to 1993), who wrote, "I like a dry vodka martini, shaken, with a twist of lemon" [2k].

All these presidents happen to be Republicans, and in view of the fact that it was President Jimmy Carter (president from 1977 to 1981) who denounced what he allegedly called the "three-martini lunch" [2k,l; 48], you might think that Democrats disdained our favorite cocktail; however, Franklin Delano Roosevelt (president from 1933 to 1945) was the chief priest of the martini-ritual, which, for many aficionados, has become as ritualized as the Japanese tea ceremony [2m]. Becoming president in 1933, the year of the repeal of 13 years of the "Noble Experiment"—Prohibition, FDR claimed to have mixed "the first legal martini." Although not a big drinker, he loved mixing martinis, and at the end of the day he invited secretaries and staff to what he called "the children's hour," at which he sometimes quoted from Longfellow's poem,

> Between the dark and the daylight,
> When the night is beginning to lower,
> Comes a pause in the day's occupations,
> That is known as the Children's Hour.

FDR's silver cocktail shaker and cups (Figure 7) are preserved in the Franklin D. Roosevelt Library in Hyde Park, NY. FDR was so popular and his use of the White House was so dramatic that he gave the cocktail hour in general, and the martini rite in particular, an official sanction, and citizens would imitate him in the privacy of their own homes. Mixing cocktails at home became a manly art akin to carving a turkey. Yet, even before his presidency, during the 1920s and Prohibition, cocktail sets of a shaker and glasses had become typical wedding gifts ("martini sets"), encouraged no doubt by the allure of "forbidden fruit."

Supreme Court Justice William O. Douglas was FDR's favorite martini mixer. Because Roosevelt, like most of us martini drinkers, liked his martinis very strong and very cold, in January 1945, a mere two and a half months before FDR's death, Douglas gave him a birthday gift of a martini shaker that kept the ice in a separate container to avoid diluting the drink [49]. An administration official called U.S.–Soviet relations under Roosevelt as the "four martinis and let's have an agreement" era [8].

The Martini's Dryness

"Early martinis were sweet enough to make your teeth ache [A maraschino cherry was used in the sweet martinis of yesteryear, [2n]]…but in 1896 [in Stuart's book (ref 40)] came

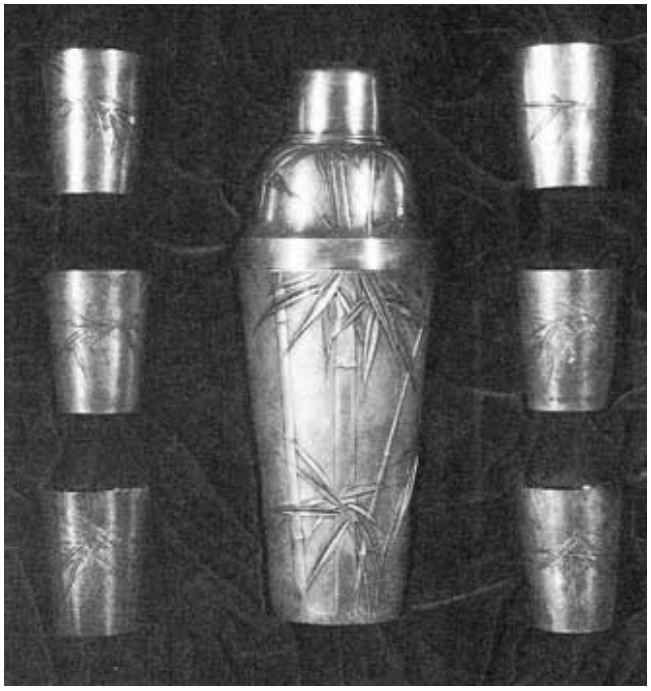

Figure 7. FDR's cocktail shaker and cups. Courtesy of the Franklin D. Roosevelt Library, Hyde Park, NY.

a recipe entailing two-thirds dry gin and one-third dry vermouth, which remained standard until the 1930s" [20]. Drier martinis, however, became fashionable, and dryness became a fetish. For instance, in *Across the River and Into the Trees* (1949) Hemingway described the 15:1 martini that he called the Montgomery "after the favorable odds that the British general allegedly required before he would attack the enemy" [8]. As time passed, the main *desideratum* of the martini came to be dryness, and all sorts of methods were devised to keep the amount of vermouth to an absolute minimum. In the early 1950s the vermouth atomizer, which blew a mist of vermouth over the martini glass, came into use, and in the mid-1960s Hammacher Schlemmer introduced a long calibrated dropper designed to fit into a vermouth bottle [2o], and syringes, scales (I received a scale as a gift from my mother-in-law and father-in-law; I used it once), and vermouth-infused stones appeared on the market [8]. On August 16, 1963 Nick's Restaurant in Boston issued a commemorative placard claiming that its bartender had "succeeded in isolating the vermouth molecule" at noon that day [2o].

In the 1957 play and 1967 musical "Auntie Mame," based on Patrick Dennis's novel, young Patrick rinses the glass with a "smidgeon" of vermouth, which was then decanted, before adding iced gin, resulting in what was called the "in-and-out martini" [1i, 2q]. Another method was to pour the gin into an empty vermouth bottle and then over ice. Or, the vermouth was poured over ice cubes held in a sieve over a sink, and then the gin was poured over the same ice cubes into a pitcher. Or, the draft from an electric fan might be allowed to blow across the top of an open vermouth bottle in the direction of the pitcher or shaker. Or, the vermouth bottle might be placed next to the gin and the bottle turned slowly so that the label with the word "vermouth" was exposed to the gin for about a second. Or, the seeker of dryness might merely whisper the word "vermouth" over the gin or just salute in the general direction of France [2q]. The previously mentioned ASA document suggests:

> A 60 watt incandescent lamp is placed on a flat surface 9 inches from a sealed bottle of vermouth. A sealed bottle of gin is placed on the other side of the bottle of vermouth at a distance of 23 inches…. The lamp may be illuminated for an interval of 7 to 16 seconds. The duration of exposure is governed by the color of the bottles [2h].

At the time of the first test of the nuclear bomb at the Trinity Site, Alamogordo Bombing Range, White Sands, New Mexico (5:29 a.m., July 16, 1945), a bottle of vermouth was supposedly secreted in the plutonium bomb and subjected to nuclear fission [2q]. Thereafter one could merely hold the martini glass filled with gin out of the window to obtain a "fissionable martini" [2q]. Or, for the ultimate dry martini you might climb to Echo Point, shout "Vermouth," and catch the echo in a glass of iced gin. Pure gin is sometimes called a "naked martini" [2r].

The American Cocktail

The martini has undergone many mutations, but most of these are either minor variations, or the cocktail described as a martini is not really a martini at all [1j, 2t, 50–52]. Probably the strangest martini on record resulted when a certain Lester A. Rodin, who was deprived of refrigerator ice during a 1966 electricity blackout, suspended a cupful of martini in a wide-neck Dewar flask (thermos bottle) of liquid nitrogen (–195.8° C; –320.4° F) and inserted a stick into the cocktail as it froze, thus inventing the "Martini-sicle" [53].

The martini is the subject of countless articles, books, and bartender manuals, but we have had space to cite only a few [54–58]. Probably the best summary of the characteristics, qualities, and mystique of this most basic of drinks is that it epitomizes

> the essential American modernist style: powerful yet understated, with both guts and grace, tough yet elegant, spare and simple yet suggesting great complexity…. Combining energy and austerity, power and subtlety, urbanity and sophistication, all in a sexy, elegantly simple, streamlined package, the martini is the essence of American modernism in drinkable form. It's modern America as a cocktail [2s, 8].

Acknowledgment. I wish to thank Sue Seiden, Manger of the San Joaquin River Parkway and Conservation Trust's "Parties for the Parkway," for inviting me to present this martini tutorial. I am also indebted to University Photographer Randy Vaughn-Dotta of the California State University, Fresno Academic Innovation Center for his excellent photographic work; Diane Majors of the CSUF Henry Miller Madden Library for locating source material; and Research Corporation of Tucson, Arizona for financial support.

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1981); (a) p xix; (b) pp 8–9; (c) pp 78–19; (d) p 82; (e) p 139; (f) p 84; (g) pp 61–62; (h) pp 93–94; (i) p 54; (j) p 15; (k) pp xxviii–xxix; (m) pp 88–89; (n) p 16; (o) pp 90–92; (p) pp 28–29, 89; (q) pp 92–93; (r) p 94; (s) p 36; (t) pp xx–xxii, xxviii, 32, 60, 111.

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5. http://www-rci.rutgers.edu/~edmunds/Martinez.html (accessed Aug 2001). Edmunds' Website contains much additional information that he gleaned since the publication of his 1998 book (ref 2).
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11. Because my wife Laurie and I remembered the oft-quoted lines, "Of all the gin mills in the world" and "Here's looking at you, kid," we naturally assumed that the martini was the drink of choice in the 1942 movie cult classic "Casablanca." To our surprise, a recent viewing of the film revealed that the drink was a champagne cocktail, which was also the drink in the 1957 sentimental film, "An Affair to Remember" starring Cary Grant and Deborah Kerr. Go figure!
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25. Electronic responses to ref 24; 15 electronic letters by various authors, dating from December 18, 1999 to February 21, 2000; http://www.bmj.com/cgi/eletters/319/7225/1600#EL1 (accessed Aug 2001).
26. In the immortal words of the great James Bond, "I would like a medium dry martini—with a slice of lemon peel. Shaken and not stirred, please." When Scottish actor Sean Connery, the quintessential 007, was knighted by Queen Elizabeth II at Hollyrood House in Edinburgh, Scotland on July 5, 2000, British newspapers used variants of this famous phrase in their reports of the event, for example, "Sean stirred but not shaken by knighthood (Getty, S. *Daily Express,* Micro Edition, July 6, 2000; http://www.lineone.net/express/00/07/06/news/n0420-d.html (accessed Aug 2001).
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35. During the summer of 1983, at a dinner party at the home of H. A. M. Snelders, professor of the history of science at the University of Utrecht, I made the unfortunate remark that all gins tasted the same. Harry Snelders proceeded to serve me a lengthy series of different Dutch gins of varying tastes and qualities. The rest of the evening is somewhat hazy.
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47. According to Edmunds (ref 2, pp xvii–xviii), "the Martini on the rocks is an abomination, and must be classed with fast foods, rock and roll, snowmobiles, acid rain, polyester fabrics, supermarket tomatoes, and books printed on toilet paper as a symptom of anomie."
48. Actually Carter intended to abolish the "$50 Martini lunch" as part of his tax reform plan [8]. "The White House denied that President Carter ever used the expression 'three-martini lunch'" (*Forbes*, Nov. 1, 1977, p 34), and the following February Carter stated, "I don't care how many martinis anyone has with lunch, but I am concerned about who picks up the check."
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52. The menu of Philadelphia's "Martini Café" lists 125 different kinds of martinis, including one with chocolate liqueur! (Snow, R. F. Four for the Fourth. *American Heritage* **1997,** *48* (4), 5). Also, in October 2000 a new Fresno Chinese restaurant, Dai Bai Dang, advertised "five new martinis"—the Dang Foxy Martini (vodka, cranberry juice, pineapple juice, and peach schnapps), Imperial Martini (vodka, Grand Marnier, and sweet and sour), Wild Orchid (vodka, pineapple juice, Midori, and raspberry liqueur), Black Raspberry (chocolate liqueur, gin, raspberry liqueur, and lemon and lime juice), and Limelight Martini (vodka, grapefruit juice, and a lime twist) (Lazo, D. K. Shaken or stirred: However you like them, there's no mistaking that martinis are shaking up the bar scene. *The Fresno Bee*, Saturday, October 28, 2000; pp E1–E2). Doubtless, similar monstrosities, which have little in common with the classic dry martini, are available at restaurants and bars throughout the country.
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