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Globalization in a Bottle

A billion hours ago, human life appeared on earth.

A billion minutes ago, Christianity emerged.

A billion seconds ago, the Beatles changed music.

A billion Coca-Colas ago was yesterday morning.

—Robert Goizueta, chief executive of the Coca-Cola Company,

April 1997

The American Century

THE TWENTIETH CENTURY was a period defined by the struggle for individual political, economic, and personal liberty against various forms of oppression, and marked by war, genocide, and the threat of nuclear annihilation. But it ended with a remarkable degree of consensus that people are happiest when granted freedom of choice in the political, economic, and personal spheres, in the form of democracy, consumerism, and the rejection of many long-standing forms of discrimination. The idea that a mere drink could come to embody these values seems absurd. And yet that is what happened during the second half of the twentieth century.

The nation that most strongly identified itself with the struggle for individual freedom was the United States, and its values have come to be inextricably associated with its national drink, Coca-Cola.

Although it was being sold in several countries outside the United States by the time of the outbreak of World War II, Coca-Cola only became a truly global brand in the wake of America's emergence as a global superpower, with the abandonment of its longtime policy of isolationism. Throughout the nineteenth century, the country had followed the line advocated by George Washington, who declared in his farewell address in 1796, "It is our true policy to steer clear of permanent alliances with any portion of the foreign world." America's intervention in World War I, which helped to tip the balance of the European conflict against the Germans and Austrians, was an exception to this rule but was seen by many Americans as a mistake. These isolationists argued during the 1930s that their country should stay out of any future European conflicts. But Japan's attack on Pearl Harbor in December 1941 brought the United States into World War II and put an end to its isolationism for good. America sent its armed forces out into the world, more than sixteen million servicemen in all, and Coca-Cola went along with them.

As the country mobilized, Robert Woodruff, president of the Coca-Cola Company, issued an order that "every man in uniform gets a bottle of Coca-Cola for five cents, wherever he is, and whatever it costs the company." The drink was already popular among soldiers and was supplied to them on exercises as a refreshing, nonintoxicating beverage. The company's well-

publicized efforts to maintain the supply would, of course, have the valuable benefit of linking Coca-Cola to patriotism and support for the war effort. But it was also genuinely welcomed by the servicemen in far-flung military bases: Coca-Cola reminded them of home and helped to maintain morale.

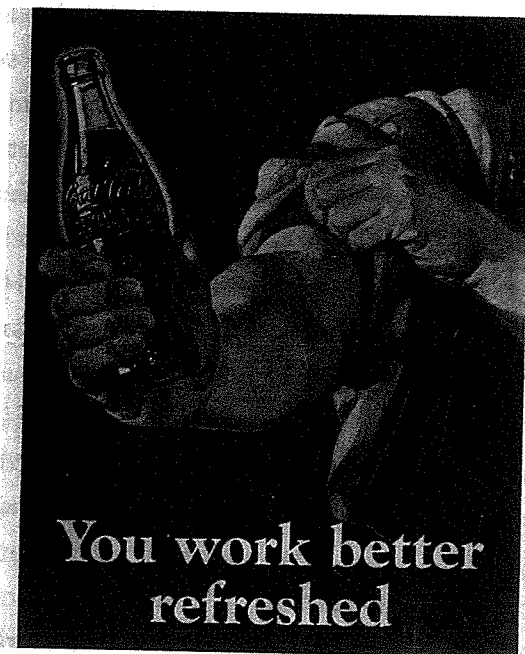
"We sincerely hope that your Company will be able to continue supplying us during this emergency," one officer wrote to the company. "In our opinion, Coca-Cola could be classified as one of the essential morale-building products for the boys in the Service." Using dozens of similar letters as evidence, and after much lobbying in Washington with the army's explicit support, the company was even exempted from sugar rationing in 1942 on the grounds that its product was essential to the war effort. This ensured that Coca-Cola production could continue, even as rationing forced makers of rival soft drinks to reduce production by as much as half.

Shipping bottles of Coca-Cola halfway around the world to wherever troops were stationed was very inefficient, however, not least because it tied up valuable shipping capacity. So special bottling plants and soda fountains were established where possible inside military bases, which meant that only the Coca-Cola syrup had to be shipped. To many military personnel, the Coca-Cola employees who installed and ran this machinery were no less important than the mechanics who kept planes and tanks running. They were granted favored status as "technical observers" and given military ranks, so that they became known as "Coca-Cola colonels." During the war they established no fewer than sixty-four military bottling plants around the world and served around ten billion drinks. The technical observers devised a

portable Coca-Cola dispenser for use in the jungle, and a slim-line dispenser that could fit through the hatch of a submarine. Coca-Cola was also made available to civilians near American bases overseas, many of whom developed a taste for the drink too. People around the world, from Polynesians to Zulus, tasted Coca-Cola for the first time.

Hundreds of letters, now preserved in the Coca-Cola archives, show how closely American servicemen identified the drink with their country and what it stood for. "To my mind, I am in this damn mess as much to help keep the custom of drinking Cokes as I am to help preserve the million other benefits our country blesses its citizens with. . . . May we all toast victory soon with a Coke," wrote one soldier. "If anyone were to ask us what we were fighting for," another soldier wrote in a letter home, "we think half of us would answer, the right to buy Coca-Cola again." Even when the drink was available in far-flung theaters of war, it was so highly prized that bottles were hoarded for special occasions or sold for vastly inflated prices. One bottle sold for five dollars in the Solomon Islands, another for ten dollars in Casablanca, and in Alaska, a bottle fetched forty dollars. Robert Scott, a pilot in the Pacific theater, was given a bottle after shooting down his fifth Japanese aircraft and becoming an "ace." But he considered it too valuable to drink and instead gave it to a surgeon who had operated on him after he sustained an injury.

The military enthusiasm for Coca-Cola was not limited to the lower ranks but went right to the top: Generals Douglas MacArthur, Omar Bradley, and George Patton also liked to drink it. The greatest enthusiast was General Dwight D. Eisen-



A World War II-era Coca-Cola advertisement

hower, supreme commander of Allied forces in Europe. In June 1943, while overseeing the Allied campaign in North Africa, he sent a detailed telegram requesting “three million bottled Coca-Cola (filled) and complete equipment for bottling, washing, capping same quantity twice monthly. Preference as to equipment is 10 separate machines for installation in different localities, each complete for bottling twenty thousand bottles per day. Also sufficient syrup and caps for 6 million refills.” The production lines were running in North Africa within six months, and the next year Coca-Cola followed as Allied troops advanced into western Europe after the Normandy landings on

D-Day. *Coca-Cola* was even the password used by American troops during the battle to cross the Rhine.

The Coca-Cola Company missed no opportunity to emphasize the totemic nature of the drink to America’s distant servicemen. One advertisement from 1942, as fighting raged in North Africa, depicted a khaki-clad soldier encountering a sign for Coca-Cola in an otherwise inhospitable desert, above the slogan, “Howdy, friend.” Another advertisement showed sailors drinking Coca-Cola on board ship. The caption beneath boasted that “wherever a U.S. battleship may be, the American way of life goes along. . . . So, naturally, Coca-Cola is there, too.” It sounds like an exaggeration, but it was not.

Conversely, the Axis powers, Germany and Japan, denounced Coca-Cola as an example of everything that was wrong with the United States—despite the fact that Coca-Cola had been sold in both countries before the war and had been particularly popular in Germany. Overlooking this inconvenient fact, Nazi propagandists sneered that “America never contributed anything to world civilization except chewing gum and Coca-Cola,” while their Japanese counterparts declared, “With Coca-Cola we imported the germs of the disease of American society.”

After the eventual Allied victory in 1945, the military bottling operations stayed in place for three years during the ensuing period of reconstruction. Production then reverted to the civilian realm. But by this time, with the exception of Antarctica, Coca-Cola had established itself on every continent on Earth, carried on the coattails of the American military. As a company official observed, the war ensured “the almost universal acceptance of the goodness of Coca-Cola.”

Cold War, Cola War

Perhaps the most unlikely convert to Coca-Cola was General Georgy Konstantinovich Zhukov, the Soviet Union's greatest military leader, who successfully defended Russia from German attack and later led his forces into Berlin to end the war in Europe. Zhukov was one of the few people who dared to disagree with Joseph Stalin, the brutal Soviet leader, who could not do away with Zhukov because of his popularity and heroic stature. During postwar negotiations over the division of Germany, Zhukov was introduced to Coca-Cola by Eisenhower and took a strong liking to the drink. But he was reluctant to be seen enjoying something so closely identified with American values, particularly as the rivalry between the two superpowers intensified. So Zhukov made an unusual request: Was it possible to make Coca-Cola without coloring, so that it resembled vodka, the traditional Russian drink? His request was passed to the Coca-Cola Company, which duly obliged and, with the endorsement of President Harry Truman, devised a colorless version. It was shipped to Zhukov in special cylindrical bottles, sealed with a white cap and labeled with a red Soviet star.

In 1948 the postwar euphoria that had attended the founding of the United Nations had evaporated, and the Soviet Union directly challenged the United States by blockading West Berlin, a tiny western toehold on the Soviet side of a now-divided Europe. The Western powers responded by airlifting supplies into West Berlin around the clock for over a year until the Soviets lifted the blockade. With the establishment in 1949 of the North Atlantic Treaty Organization (NATO), an alliance

between the United States and its European allies, and the setting up of the rival Warsaw Treaty Organization by the Soviet Union, the stage was set for the decades-long military deadlock of the cold war. During this period, in which the two blocs competed for influence and fought proxy wars in many parts of the world but never came into direct conflict, Coca-Cola came to be associated not just with America but with the broader Western values of freedom, democracy, and free-market capitalism. Among communists, conversely, Coca-Cola came to stand for everything that was deemed wrong with capitalism, particularly the notion that satisfying consumers' often trivial demands should be the organizing principle of the economy. As a placard at the Coca-Cola Company's 1948 convention put it, "When we think of Communists, we think of the Iron Curtain. But when they think of democracy, they think of Coca-Cola."

The Coca-Cola Company rapidly expanded its overseas operations during the late 1940s, so that by 1950 a third of its profits came from outside the United States. This coincided with America's growing political influence as the leading capitalist nation in the worldwide struggle against communism, and with the American-funded initiative to reconstruct Europe, the Marshall Plan. For those who objected to America's growing clout, and who regarded the Marshall Plan as imperialism by other means, Coca-Cola provided an obvious target for their anger. The term *Coca-Colonization* was first used by communist sympathizers in France, who mounted a vigorous campaign against the establishment of new bottling plants in their country. It would, they suggested, harm the domestic wine and mineral-water industries; they even tried to have Coca-Cola

outlawed on the grounds that it was poisonous. This caused an outcry in America, where newspaper editorials called for the end of Marshall Plan aid to the ungrateful French. Company officials pointed out that the drink had not adversely affected the health of the American soldiers who had liberated France. The French papers responded in kind: *Le Monde* warned that "the moral landscape of France is at stake." Coca-Cola trucks were overturned by French protesters, and bottles smashed. Ultimately, however, the French campaign against Coca-Cola made little difference. Indeed, it generated huge amounts of free publicity and gave the drink an exotic, illicit cachet.

Similar campaigns were waged in other countries. Communist activists suggested that Coca-Cola had adverse health effects and that its spread would pollute European countries with American cultural values. They were often supported by brewers, bottlers of mineral water, and makers of soft drinks, who were delighted by the anti-Coca-Cola hysteria the communists were stirring up. Austrian communists claimed that their country's Coca-Cola bottling plant could be converted into an atom-bomb factory at a moment's notice. Italian communists claimed that the drink turned children's hair white overnight. The Coca-Cola Company quietly plodded on, refusing to rise to the bait, and setting up new overseas bottling franchises in the belief that direct experience of its drink would convince consumers of its merits. Robert Woodruff, the Coca-Cola Company's boss, neatly explained communist antagonism toward Coca-Cola by observing that the drink was "the essence of capitalism." But as the drink became more popular, the ridiculous claims about it—that it made drinkers impotent or led to cancer or infertility—slowly subsided.

In 1959 American vice president Richard Nixon visited Moscow, where he traded insults with the Soviet premier, Nikita Khrushchev, at a special trade fair showing off American products. In a public-relations coup for PepsiCo, Nixon and Khrushchev stopped at the Pepsi stand and were photographed drinking Pepsi together. But in 1965, when the Coca-Cola Company began to look into setting up operations in Russia, behind the Iron Curtain, where a vast potential market awaited, there was an immediate backlash. Since private companies were not allowed in communist states, the Soviet government itself would be the company's partner, and any profits would flow into the state coffers. With the Vietnam War raging, critics argued that Coca-Cola would, in effect, be helping to subsidize America's communist foes. So the company swiftly abandoned its plans.



U.S. vice president Richard Nixon and Soviet premier Nikita Khrushchev at the Pepsi stand at the U.S. Trade and Cultural Fair in Moscow in 1959

This left the way clear for Pepsi. Having been defeated in the race for the California governorship in 1962, Nixon joined Pepsi's law firm and became Pepsi's ambassador overseas. Since it was not tainted by anticommunist propaganda, Pepsi was better able to expand behind the Iron Curtain. It established operations in Romania in 1965 and with Nixon's help began selling its drink in Russia, where it was granted an exclusive license in 1972. It looked as though Coca-Cola had a foot in the door in 1980, with an agreement that it would be the official soft drink of the Olympics, to be held that year in Moscow. But President Jimmy Carter then announced an American boycott of the games in response to the Soviet Union's invasion of Afghanistan, so Coca-Cola was rebuffed once again.

Ultimately, however, Coca-Cola's failure to establish itself in the Soviet-bloc countries proved to be an advantage. The Berlin Wall fell in 1989, presaging the collapse of communist regimes across eastern Europe and the dissolution of the Soviet Union in 1991. As East Germans streamed through the cracks in the Berlin Wall, they were greeted with Coca-Cola. "We found ourselves welcoming the new arrivals with bananas, Coca-Cola, flowers, and anything else that smacked of Western consumerism," recalled one eyewitness. East Germans queued up to buy the drink by crate directly from the Coca-Cola bottling plant in West Berlin. Along with hi-fi equipment, televisions, refrigerators, and other consumer products, crates of Coca-Cola were among the consumer items most eagerly sought out by East Berliners. Pepsi's greater success behind the Iron Curtain counted against it as the communists were ousted. It was regarded by many drinkers as a local brand associated with the old regimes, whereas Coca-Cola

was seen as exotic and foreign. Drinking Coca-Cola became a symbol of freedom. By the mid-1990s, Coca-Cola had overtaken Pepsi as the most popular cola in the former Soviet-bloc countries.

Coca-Cola in the Middle East

Coca-Cola's close association with American values counted against it in another part of the world: the Middle East. The problems started in 1966, when an Israeli businessman accused the Coca-Cola Company of staying out of the Israeli soft-drink market in order to protect its business in the much larger Arab market. The Arab world, with its ban on alcoholic drinks and its hot climate, was certainly a promising market for Coca-Cola; its annual profits in the region amounted to some twenty million dollars. The company argued that its attempts to open a bottling plant in Israel in 1949 had been blocked by the Israeli government; it also claimed that the Israeli market was too small to be economically viable. But if that was the case, asked its critics, why was it doing business in Cyprus, an even smaller market? Accusations of anti-Semitism mounted, and Jewish organizations in the United States, including Mount Sinai Hospital in Manhattan and Nathan's Famous Hot Dog Emporium on Coney Island, began to boycott Coca-Cola.

The company responded by announcing that it would license an Israeli bottling franchise in Tel Aviv. This, in turn, provoked the Arab League to call on its members to boycott Coca-Cola. The company refused to back down, and the Arab boycott came into force in August 1968. The company's decision was entirely

pragmatic: It gave up the Arab market in order to avoid a domestic boycott by the Jewish community, which would have cost it far more. The result was that Coca-Cola once again found itself aligned with and identified with American foreign policy. Pepsi, meanwhile, took advantage of the opportunity to move into Arab markets while staying out of Israel, even though this cost it some customers in the United States, who considered its actions anti-Semitic.

Not until the late 1980s, when the Arab boycott of Coca-Cola finally crumbled, did Coca-Cola begin making inroads into Arab markets, notably in Egypt, Lebanon, and Jordan. But the real prize was Saudi Arabia, which had become Pepsi's third-largest foreign market after Canada and Mexico. During the Gulf War of 1991, Coca-Cola sent in refrigerated trucks to supply American troops stationed in Saudi Arabia, but could not compete with Pepsi, which had five factories in the country. Television viewers around the world saw General Norman Schwarzkopf, the American commander of the coalition that had evicted Iraqi forces from Kuwait, signing the cease-fire with a can of Pepsi by his side. Coca-Cola responded with a big push into the Saudi market, in order to put Pepsi on the defensive and weaken its ability to compete in other markets.

By the time of the Iraq War in 2003, the idea of expressing anti-Americanism through attacks on its soft drinks had taken several new forms. Muslim youths in Thailand poured Coca-Cola onto the ground in protest at the American-led invasion, and sales were suspended amid growing anti-American protests. Meanwhile, locally made colas started to become popular in the Middle East. Zam Zam Cola, an "Islamic" cola made in Iran by

a company that used to be Pepsi's partner in the country, became popular in Iraq, Qatar, Bahrain, and Saudi Arabia, where it sold four million cans in its first week on sale. Star Cola, made in the West Bank, became popular in the United Arab Emirates. The equation of Coca-Cola with the United States persisted for both critics and supporters. When American troops occupied Saddam Hussein's palace in Baghdad in April 2003, they held a barbecue at which they consumed hamburgers, hot dogs, and, inevitably, Coca-Cola.

Globalization by the Bottle

As well as being associated with America, Coca-Cola also encapsulates the trend toward a single global marketplace: in a word, globalization. Believers in globalization argue that abolishing trade barriers, tariffs, and other obstacles to free and unfettered international commerce is the best way to improve the fortunes of rich and poor countries alike. By setting up factories in the developing world, for example, companies from rich countries can reduce their costs, while also creating jobs and boosting the economy in the poorer countries where they set up shop. Opponents of globalization complain that such practices are exploitative, since they create low-wage, low-status jobs; multinational companies are also able to exploit looser labor and environmental regulations by shifting jobs overseas. The debate rages on. But an oft-heard complaint, as companies spread their tentacles around the world and compete on a global playing field, is that globalization is merely a new form of imperialism. Antiglobalization activists argue that the world's only superpower, the United

States, is intent on invading the rest of world not with soldiers and bombs but with its culture, companies, and brands, chief among them Microsoft, McDonald's, and Coca-Cola.

Certainly no single product is more representative of globalization than Coca-Cola. The global fight with Pepsi continues around the world; the big new battleground is China. But that is just one of the more than two hundred territories where the Coca-Cola Company operates—more than the United Nations has members. Its drink is now the world's most widely known product, and "Coca-Cola" is said to be the second most commonly understood phrase in the world, after "OK." No other company can match it for global reach, visibility, or recognition. Coca-Cola consistently tops the list of the world's most valuable brands, published each year in *BusinessWeek* magazine.

Yet even the most powerful brand in the world cannot brainwash people into buying something they do not want, despite antiglobalists' claims to the contrary. New Coke, a sweeter, more Pepsi-like drink that was introduced by the Coca-Cola Company in 1985, was a disaster. Consumers shunned the new drink, and sales plummeted, forcing the company to reintroduce the original drink as Coca-Cola Classic within weeks and sealing the fate of its attempt to meddle with an American icon.

Coca-Cola also shows how strong global brands can work in consumers' interests, not against them. Around the world, the Coca-Cola name and logo are the company's guarantee of consistent quality. With a brand worth an estimated seventy billion dollars, the company has a huge incentive to maintain its reputation and the quality of its products, or risk losing its customers. The desire to protect its global brand makes the Coca-Cola Company,

like other large companies, extremely wary of bad publicity and far more accountable than it would otherwise be. Firms with national brands do not have to worry what people in other countries think about them, but firms with global brands do.

An analysis by *The Economist* magazine in 1997 found that consumption of Coca-Cola in different countries—a good proxy for those countries' degree of globalization—correlated closely with greater wealth, quality of life (measured using a scale devised by the United Nations), and social and political freedom. "Fizzy mass-market stuff—ie, capitalism—is good for you," the magazine concluded. It is not Coca-Cola that makes people wealthier, happier, or freer, of course, but as consumerism and democracy spread, the fizzy brown drink is never far behind.

Today, carbonated soft drinks are the most widely consumed beverages in the United States, accounting for around 30 percent of all liquid consumption, and the Coca-Cola Company is the biggest single supplier of such drinks. Globally, the company supplies 3 percent of humanity's total liquid intake. Coca-Cola is unquestionably the drink of the twentieth century, and all that goes with it: the rise of the United States, the triumph of capitalism over communism, and the advance of globalization. Whether you approve of that mixture or not, you cannot deny the breadth of its appeal.

Epilogue

Back to the Source

Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a healthy life in human dignity. It is a prerequisite for the realization of other human rights.

—United Nations Committee on Economic, Cultural, and Social Rights, 2002

SIX BEVERAGES HAVE defined humankind's past, but which will embody its future? One drink has already emerged as the most likely candidate. Like many of the defining drinks of history, it is highly fashionable, is the subject of conflicting medical claims, and has unseen but far-reaching geopolitical significance. Its availability will determine the path of humankind's future, on Earth and potentially beyond. Ironically, it is also the drink that first steered the course of human development: water. The history of drinking has come right back to its source.

On the face of it, this might appear to be a welcome occurrence. Much of the appeal of other beverages, starting with beer in the Neolithic period, was that they were less likely than water

to be contaminated. Only when the microbiological basis of water contamination began to be unraveled in the nineteenth century did it become feasible to tackle a problem that had bedeviled humans for centuries: maintaining an adequate supply of freshwater. Where previous generations turned to other drinks as substitutes, it is now possible to address the problem of contamination directly, through water purification and other improvements in sanitation. Water's growing popularity, in other words, suggests that the danger of contamination is finally receding. But the reality is rather more complicated. Indeed, nowhere is the gulf between the developed and developing worlds more apparent than in their attitudes toward water.

Sales of bottled water are booming, with the highest levels of consumption in the developed world, where tap water is abundant and safe to drink. Italians are the world's most enthusiastic consumers of bottled water, drinking an average of 180 liters per year each; they are closely followed by the French, Belgians, Germans, and Spanish. The global bottled-water industry had revenues of around forty-six billion dollars in 2003, and consumption of bottled water is growing by 11 percent a year, faster than for any other drink. Restaurants serve expensive water in designer bottles, and the habit of carrying a small plastic bottle of drinking water at all times, pioneered by supermodels, has become widespread. Stop at a filling station in the United States, and you will find that bottled water, ounce for ounce, costs more than gasoline. Mineral waters from specific sources, from France to Fiji, are shipped to consumers around the world.

The popularity of bottled water stems from the widespread belief that it is healthier and safer than tap water. But tap water,

in developed nations at least, is just as safe. While there are occasional contamination scares, they affect bottled water too. In one study, published in the *Archives of Family Medicine*, researchers compared bottled water with tap water from Cleveland, Ohio, and found that a quarter of the samples of bottled water had significantly higher levels of bacteria. The scientists concluded that "use of bottled water on the assumption of purity can be misguided." Another study carried out at the University of Geneva came to the same conclusion, as did a report from the United Nations Food and Agriculture Organization, which found that bottled water was no better from a nutritional point of view than ordinary tap water.

That is hardly surprising, since as much as 40 percent of the bottled water sold in the United States is, in fact, derived from tap water, though it is usually filtered and may have extra minerals added. America's two leading bottled-water brands, Aquafina and Dasani, are derived from municipal water supplies. And although many bottled-water labels depict glaciers, crystal streams, and ice-covered mountains, these images do not always reflect the true origins of the water within. A study by the National Resources Defense Council, an American environmental lobby group, found that one brand of bottled water, labeled as "pure glacier water," came from a municipal water supply. Another brand, claiming to be "spring water," with a label showing a lake and mountains, actually came from a well in a factory parking lot, near a hazardous waste dump. The study also noted that in both Europe and the United States, the quality of tap water is far more stringently controlled than the quality of bottled water.

There is no evidence that bottled water is any safer or healthier than the tap water available in developed nations, and in blind tasting tests, most people cannot tell the difference between the two. The differences in taste between bottled waters exceed the difference in taste between bottled water and tap water. Yet people continue to buy bottled water, even though it costs between 250 and 10,000 times as much per gallon as tap water. In short, safe water has become so abundant in the developed world that people can afford to shun the tap water under their noses and drink bottled water instead. Since both kinds are safe, the sort of water one drinks has become a lifestyle choice.

In contrast, for many people in the developing world, access to water remains a matter of life or death. A fifth of the world's population, or around 1.2 billion people, currently lack reliable access to safe drinking water. The World Health Organization estimates that 80 percent of all illness in the world is due to waterborne diseases, and that at any given time, around half of the people in the developing world are suffering from diseases associated with inadequate water or sanitation, such as diarrhea, hookworm, or trachoma. There are about four billion cases of diarrhea a year, resulting in 1.8 million deaths, 90 percent of them among children under five. Illness and death are not the only consequences of the lack of access to water; it also hinders education and economic development. Widespread illness makes countries less productive, more dependent on outside aid, and less able to lift themselves out of poverty. According to the United Nations, one of the main reasons girls do not go to school in sub-Saharan Africa is that they have to spend so much time fetching water from distant wells and carrying it home.

The United Nations has set a goal of reducing by half the proportion of people without access to freshwater and adequate sanitation by 2015. But although good progress was made during the 1980s and 1990s, the rate at which people are being connected to safe water supplies has since declined. One problem is that while access to water is still improving in rural areas, its availability in cities has declined in many parts of the developing world. This decline is worrisome, given the unstoppable trend toward urbanization. By around 2007, demographers estimate, more than half of the world's population will for the first time be living in cities; humankind will have completed the six-thousand-year transition from being a predominantly rural to a predominantly urban species. According to figures from the International Water Management Institute, it would cost an extra \$1.7 billion a year beyond what is already being spent to achieve the United Nations' desired improvement in access to water, while improving sanitation would cost a further \$9 billion or so a year—a small fraction of the amount spent on bottled water in rich nations. But there is more to solving the problem of access to water than money. In many cases there are political obstacles too. In recent years disputes over water rights, particularly in the Middle East and Africa, have caused political tension and even military conflict.

Water was, for example, an important unseen factor behind the Six Day War of 1967, when Israel occupied Sinai, the Golan Heights, the West Bank, and Gaza. Ariel Sharon, who was a general at the time and later became Israel's prime minister, noted in his autobiography that although people usually regard June 5,

1967, as the start of the Six Day War, "in reality, it started two and a half years earlier, on the day Israel decided to act against the diversion of the Jordan." In 1964 Syria had started building a canal to divert two of the main tributaries of the Jordan River away from Israel. Using a combination of artillery and air strikes, Israel brought work on the canal to a halt. "While the border disputes between Syria and ourselves were of great significance, the matter of water diversion was a stark issue of life and death," wrote Sharon. Israel values the territories it occupied in 1967, which granted it control of the Jordan's headwaters, as much for their water supply as for any military advantage. The Palestinians who live in the West Bank are allotted just 18 percent of the territory's water; the rest goes to Israel.

Ever since, politicians in the Middle East have cited water as a possible cause of future conflict in the region. In 1978 Egypt threatened military action against Ethiopia if it interfered with the flow of the Nile, Egypt's chief water supply. When Egypt signed a peace treaty with Israel in 1979, its president, Anwar Sadat, declared that "the only matter that could take Egypt to war again is water." And in 1985 Boutros Boutros-Ghali, then the Egyptian foreign minister and later the secretary-general of the United Nations, predicted that "the next war in the Middle East will be fought over water, not politics."

It is hardly surprising that water should be such a contentious topic; rivers and lakes mark international boundaries, and at least ten rivers flow across half a dozen or more borders, so that one country's actions affect other countries downstream. Ethiopia controls 85 percent of the waters of the Nile, upstream of Egypt; Turkey's dam on the Euphrates lets it control the flow into Syria.

Flooding has prompted Bangladesh to demand that India and Nepal build dams upstream to control the flow of the Ganges and Brahmaputra rivers.

In the arid region of central Asia, there are fears that growing water scarcity might spark conflict between the former Soviet republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Another concern is that climate change will alter the distribution of water, leading to flooding in some areas and droughts in others, affecting agricultural production, and causing political instability. Many observers have, therefore, suggested that water might replace oil as the scarce commodity most likely to trigger international conflict.

Yet water can also promote international cooperation. Access to water is so fundamental that its management has often forced otherwise hostile states to work together. The Indus Basin Treaty of 1960, which dictates how India and Pakistan should share the water of the Indus and its tributaries, has remained in force despite repeated military clashes between the two nations. Similarly, Cambodia, Laos, Thailand, and Vietnam have cooperated over the management of the Mekong, even though the region through which it flows has been racked by war. And in the late 1990s the ten squabbling countries of the Nile Basin signed a cooperative water-management agreement backed by the United Nations and the World Bank. Water, it seems, has the potential to be both a cause of war and a catalyst for peace.

In the longer term, and assuming that humanity manages to avoid nuclear self-immolation, the establishment of colonies on other worlds, starting with Mars, will also depend on the avail-

ability of adequate water. The inhabitants of a Mars colony will need water to drink and wash, to grow crops, and to convert into rocket fuel, which can be made by splitting water into its component elements, hydrogen and oxygen. This, together with the search for extraterrestrial life (which is also assumed to depend on water), explains why so much effort is being put into locating and understanding the distribution of water on other bodies in the solar system. Some scientists even believe that colonizing Mars is necessary to ensure the continued survival of humanity. Only by becoming a "multiplanetary species," they argue, can we truly guard against the possibility of being wiped out by war, disease, or a mass extinction caused by an asteroid or comet crashing into the Earth. But that will depend on finding supplies of water on other worlds.

Water was the first drink to steer the course of human history; now, after ten thousand years, it seems to be back in the driving seat. To talk of colonizing other planets seems outlandish, but the idea is surely easier for us to understand than the modern world would be for a person transported through time from a Neolithic village from 5000 BCE. He would not recognize any modern language and would no doubt have difficulty comprehending aspects of modern life such as writing, plastics, airliners, and computers. But while much has changed in the intervening millennia, some things have remained the same. He would surely appreciate a glass of beer and would recognize the communal toast for good luck and the ensuing companionable atmosphere.

For our Neolithic time traveler, a drink of beer might provide a connection with the future; for us, beer is one of the beverages

that can provide a window on the past. When you next raise some beer, wine, spirits, coffee, tea, or Coca-Cola to your lips, think about how it reached you across space and time, and remember that it contains more than mere alcohol or caffeine. There is history, too, amid its swirling depths.