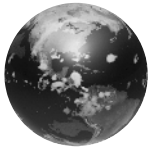
CHAPTER 1

WHAT A DIFFERENCE A CENTURY MAKES

- POTENTIAL
- Capitalism Transformed the Twentieth Century
- Be Thankful It's Not 1910
- The "Good Old Days" of Horses and Wagons
- Engineering + Capitalism Powered the Twentieth Century
- Would You Believe Men Were Sexists in 1943?
- How "Ka-ching" (The Cash Register) Continues to Change Society (William G. Marshall)



Looking at the table in, "Capitalism Transformed the Twentieth Century" (pages 4–5), just a few items in the list demonstrate the awesome changes that we have gone through during the previous century:

- World population increased by 5 billion people, and the U.S. population quadrupled.
- Two-thirds of rural dwellers moved to cities and suburbs.
- Workers on farms shrank from 37.5 to just 2.5 percent.
- Of 4.8 people in an average household, only 2.6 remain today.
- The life expectancy of American women went from 48.3 to 80.4 years.
- Children per woman in developing countries shrank from 6.2 in 1950 to 3.2 today, and in developed countries from 2.8 to 1.5.
- And would you believe that high school enrollment went from 11 to 93 percent?

You won't believe the sexism that existed back in 1943 during World War II, when so many men were in the military and women were hired to replace them (page 11).

Can you imagine the dramatic changes that will have taken place by the end of the twenty-first century? Will you be one of those making a giant contribution to humankind—or at least make many people proud of you?

POTENTIAL

Inside each of us are powers so strong, treasures so rich, possibilities so endless, if I command them all to action I could make a GIANT DIFFERENCE to millions of people in the world.

We all have enormous potential! There is no limit to what each and every one of us can accomplish. This is my most important message to you and every other human being on planet Earth!

CAPITALISM TRANSFORMED THE TWENTIETH CENTURY

In 1900, 13 percent of people who were 65 could expect to see 85. Now, nearly half get to 85. Capitalism brought dramatic changes that raised the human spirit and quality of life higher than ever before: productivity, technology, civil rights, equality of the sexes, electrification, transportation, communication, the list is endless. The data in the following table come from *Time* magazine, *World Almanac*, *Parade* magazine, as well as selected U.S. government sources, and two books, *It's Getting Better All the Time* and *The First Measured Century.*

Capitalism Transformed the Twentieth Century

	1900	Today
World population	1.6 billion	6.7 billion
U.S. population (570 million est. in 2100)	76 million	306 million
Americans living in rural areas	60%	20%
Percent of workers in farming (75% in 1800)	37.5%	2.5%
People in average household	4.8	2.6
U.S. per capita Income (in current dollars)	$4,748	$36,276
Hours per average workweek	52	37.9
Percent of Americans who own stocks	1%	52%
Telephone calls per capita per year	38	2,325
Centenarians per million people	46	383
Life expectancy American women	48.3	80.4
Unmarried couples living together	>1%	7%
Children per woman (developing countries)	6.2 (1950)	3.2
Children per woman (developed countries)	2.8 (1950)	1.5
Infant deaths per 1,000 live births U.S.	140	6.3
Mothers dying out of 10,000 births (est.)	100	1

		1900	Today
Deaths from heat in Chicago (before air conditioning)		10,000	200+
High school enrollment (age 14–17)		11%	93%
Bachelor's degrees		27,410	1,500,000
B.A.'s earned by Women		19%	58%
Master's degrees		1,583	604,918
M.A.'s earned by women		19%	61%
Doctorate degrees		382	52,700
PhD's earned by women		6%	49%
Size of British Empire (sq. miles)		11 million	100,000
People living in democracies (Freedom House)		12.4%	63.2%
Lynchings in United States		94	0
Books published		6,400	65,000+
Price of 1,000 lumens of light		40 cents	1/10th cent
Cars sold worldwide		4,000	71 million
Airline passengers in the sky over the United States per day		0	1.8 million
Barrels of oil produced		150 million	31 billion
Acres of forested land worldwide		15 billion	8 billion
Where the United States gets its energy (DOE)	Wood	23%	0
	Coal	74%	22.5%
	Oil	3%	39.0%
	Gas	0	22.9%
	Nuclear	0	8.0%
	Renewables	0	7.6%

Sources: Stephen Moore and Julian L. Simon, *It's Getting Better All the Time* (Washington, D.C.: Cato Institute, 2000); Theodore Caplow, Louis Hicks and Ben J. Wattenberg, *The First Measured Century: An Illustrated Guide to Trends in America, 1900–2000* (Washington, D.C.: American Enterprise Institute, 2001); and data from *Time*, *World Almanac*, *Parade*, and U.S. government sources.

Imagine the changes that will take place in the twenty-first century!

BE THANKFUL IT'S NOT 1910[1]

- Average life expectancy for white males in the United States was 49 years. For black males, it was 34.
- A housewife spent 40 more hours a week doing housework. There were no washing machines, vacuum cleaners, or dishwashers.
- Few homes had a bathtub. Outhouses were normal in rural America.
- New York-to-California long-distance telephone calls began in 1915—$20.70 for the first 3 minutes, and $6.75 each additional minute.
- There were 181,000 cars manufactured in the United States. Total vehicles produced in 2007 were 10.6 million.
- The tallest structure in the world was the Eiffel Tower at 1,986 feet.
- The average Michigan male factory worker made $2.56 per day. A woman factory worker made $1.14.
- There were no refrigerators or air conditioners.
- Most births took place at home and not in maternity wards.
- Ninety percent of all U.S. doctors had no college education according to the Flexner Report.
- Sugar cost 6 cents a pound, codfish 12, and coffee was 20 cents a pound.
- To start your car you had to crank it. Self-starters became available on a limited number of cars in 1911.
- Five leading causes of death were: heart disease, pneumonia from influenza, tuberculosis, diarrhea, and stroke.
- The American flag had 46 stars. Arizona, New Mexico, Hawaii, and Alaska hadn't been admitted to the Union yet.
- The population of Las Vegas, Nevada, was only 945.
- Eleven of the 46 states were more heavily populated than California, with just 2,377,549 residents.
- There were no crossword puzzles. The first did not appear until Arthur Wynne published the first one in the *New York World* in December 1913.
- There was no Mother's Day. Congress would not make it official until 1914. (Father's Day had to wait until 1972.)
- Of those over 25 years old, only 13.5 percent had completed four years of high school.
- Many children worked fulltime. U.S. child labor laws took many years to be passed. (Today, over 250 million children, mostly in Africa, still work fulltime.)

THE "GOOD OLD DAYS" OF HORSES AND WAGONS

In his 1990 book, *The Automobile Age,* James Flink wrote,

> In New York City alone at the turn of the century, horses deposited on the streets every day an estimated 2.5 million pounds of manure and 60,000 gallons of urine, accounting for about two-thirds of the filth that littered the city's streets. Excreta from horses in the form of dried dust irritated nasal passages and lungs, then became a syrupy mass to wade through and track into the home whenever it rained. New York insurance actuaries had established by the turn of the century that infectious diseases, including typhoid fever, were much more frequently contracted by livery stable keepers and employees than by other occupational groups. The flies that bred on the ever present manure heaps carried more than thirty communicable diseases. Traffic was often clogged by the carcasses of overworked dray horses that dropped in their tracks during summer heat waves or had to be destroyed after stumbling on slippery payments and breaking their legs. About 15,000 dead horses were removed from the streets of New York each year. Urban sanitation departments, responsible for daily cleaning up of this mess, were not only expensive but typically graft- and corruption-ridden. These conditions were characteristic in varying degree in all large and medium-sized cities.[2]

How lucky we are we invented the automobile! Our next stop will be reducing gasoline usage and switching to hybrids and electric cars.

Daily Deposits on Streets Everywhere in 1900

1900	Population	Manure (lbs)	Urine (gals)
NYC	3,437,202	2,500,000	60,000
USA	76,212,168	55,400,000	1,320,000
World	1,600,000,000	1,163,400,000	27,720,000

What if They Hadn't Invented the Automobile?

2009 Est.	Population	Manure (lbs)	Urine (gals)
NYC	8,300,000	6,036,590	144,878
USA	305,845,034	223,226,740	5,321,703
World	6,760,000,000	4,934,800,000	117,624,000

ENGINEERING + CAPITALISM POWERED THE TWENTIETH CENTURY

How many of the twentieth century's greatest engineering achievements are you using today? A car? computer? Cell phone? The National Academy of Engineering's list of the top 20 achievements show how engineering shaped a century and changed the world.

Greatest Engineering Achievements of the Twentieth Century[3]

1. **Electrification.** Widespread electrification gave us power for our cities, factories, farms, and homes, and forever changed our lives. From streetlights to supercomputers, electric power makes our lives safer, healthier, and more convenient.
2. **Automobiles.** Henry Ford fine-tuned mass production and the world drove off into the age of affordable transportation—forever altering our notions of place and distance.
3. **Airplanes.** Modern air travel transports goods and people quickly around the globe, facilitating our personal, cultural, and commercial interaction.
4. **Water Supplies and Distribution.** Today a simple turn of the tap provides clean water—changing life profoundly, virtually eliminating waterborne diseases in developed nations.
5. **Electronics.** From vacuum tubes to transistors to integrated circuits, engineers have made electronics smaller, more powerful, and more efficient, paving the way for products that have improved the quality and convenience of modern life.
6. **Radio and Television.** These mediums were major agents of social change, opening windows to other lives, to remote areas of the world, and to history in the making.
7. **Agricultural Mechanization.** In 1900, four U.S. farmers could feed about 10 people. By 2000, just one farmer could feed more than 100 people.
8. **Computers.** Personal computers and the rise in computing power have transformed businesses and lives around the world, increased productivity, and opened access to vast amounts of knowledge.

9. **Telephones.** Nearly instant connections—between friends, families, businesses, and nations—enable communications that enhance our lives, industries, and economies.
10. **Air-Conditioning and Refrigeration.** Once luxuries, air-conditioning and refrigeration are now common necessities that greatly enhance our quality of life.
11. **Highways.** Thousands of engineers built the roads, bridges, and tunnels that connect our communities, enable goods and services to reach remote areas, facilitating commerce.
12. **Spacecraft.** Thousands of useful products and services have resulted from the space program (medical devices, improved weather forecasting, and wireless communications).
13. **Internet.** Initially a tool to link research center computers, it has become a vital force of social change, changing business practices, education, and personal communications.
14. **Imaging.** From tiny atoms to distant galaxies, imaging gives us incredible new views, both within and beyond the human body and environment.
15. **Household Appliances.** So many everyday tasks have been eliminated, enabling more people to work outside the home, and contribute significantly to our economy.
16. **Health Technologies.** Advances in medical technology have been astounding. The average longevity in the United States in 1900 was 48. Today it's about 78, a 62.5 percent increase.
17. **Petroleum and Petrochemical Technologies.** Crude oil has provided fuel for vehicles, homes, and industries, as well as the raw material for plastics, drugs, and the like—all have had an enormous effect on world economies, peoples, and politics.
18. **Laser and Fiber Optics.** Today, a single fiber-optic cable can transmit tens of millions of phone calls, data files, and video images.
19. **Nuclear Technologies.** The harnessing of the atom changed the nature of war forever, astounded the world with its awesome power, and also gave us a new source of electricity.
20. **High-Performance Materials.** From building blocks of basic materials to latest advances in polymers, ceramics, and composites, the twentieth century saw a revolution in manufacturing materials.

WOULD YOU BELIEVE MEN WERE SEXISTS IN 1943?

The following article is excerpted from *Mass Transportation Magazine* (July 1943). The article was written for male supervisors of women in the workforce during World War II.

11 Tips on Getting More Efficiency Out of Women Employees

There's no longer any question whether transit companies should hire women for jobs formerly held by men. The draft and manpower shortage has settled that point. The important things now are to select the most efficient women available and how to use them to the best advantage.

1. **Pick young married women.** They usually have more of a sense of responsibility than their unmarried sisters, they're less likely to be flirtatious, they need the work or they wouldn't be doing it, they still have the pep and interest to work hard and to deal with the public efficiently.
2. **When you have to use older women,** try to get ones who have worked outside the home at some time in their lives. Older women who have never contacted the public have a hard time adapting themselves and are inclined to be cantankerous and fussy. It's always well to impress upon older women the importance of friendliness and courtesy.
3. **General experience indicates that "husky" girls**—those who are just a little on the heavy side—are more even-tempered and efficient than their underweight sisters.
4. **Retain a physician to give each woman you hire a special physical examination—one covering female conditions**. This step not only protects the property against the possibilities of lawsuit, but reveals whether the employee-to-be has any female weaknesses which would make her mentally or physically unfit for the job.
5. **Stress at the outset the importance of time** the fact that a minute or two lost here and there makes serious inroads on schedules. Until this point is gotten across, service is likely to be slowed up.
6. **Give the female employee a definite day-long schedule of duties** so that they'll keep busy without bothering the management

for instructions every few minutes. Numerous properties say that women make excellent workers when they have their jobs cut out for them, but that they lack initiative in finding work themselves.

7. **Whenever possible, let the inside employee change from one job to another at some time during the day.** Women are inclined to be less nervous and happier with change.
8. **Give every girl an adequate number of rest periods during the day.** You have to make some allowances for feminine psychology. A girl has more confidence and is more efficient if she can keep her hair tidied, apply fresh lipstick and wash her hands several times a day.
9. **Be tactful when issuing instructions or in making criticisms.** Women are often sensitive; they can't shrug off harsh words the way men do. Never ridicule a woman—it breaks her spirit and cuts off her efficiency.
10. **Be reasonably considerate about using strong language around women.** Even though a girl's husband or father may swear vociferously, she'll grow to dislike a place of business where she hears too much of this.
11. **Get enough size variety in operator's uniforms so that each girl can have a proper fit.** This point can't be stressed too much in keeping women happy.

You've come a long way. . . . "LADY!" —*Y.H.*

HOW "KA-CHING" (THE CASH REGISTER) CONTINUES TO CHANGE SOCIETY[4]

by William G. Marshall

Pundits and advocate mercenaries want us to believe that great social change is the product of marches, news reports, divisive political campaigns, spin, lawsuits, and laws.

This is myth. America's greatest social change occurs via the economic ballot box.

Ka-ching at the cash register in the checkout aisle is not just the sound of votes tabulating a product's success. It is the sound of social change.

From America's first heartbeat, the economic ballot shaped our nation. Hunger for economic freedom precipitated America's most radical social change in 1775, the American Revolution.

For more than a decade prior to the Revolution, festering economic issues percolated throughout the American colonies. They included constraints on North American agricultural and mercantile trade and burdensome taxes such as the Stamp Act of 1765 and the Townshend acts of 1767. Colonial frustration led to events such as the Boston Massacre on March 5, 1770, in which British troops were attempting to enforce customs duties and the Boston Tea Party of 1773, protesting yet another tax.

These economic disputes eventually exploded into military action on April 19, 1775, first at Lexington, then at Concord. Full-scale war ensued with the rebels conducting a siege of Boston that resulted in a British defeat and evacuation on March 17, 1776.

The nine-year Revolutionary War had begun. But it was not until January 1776, nine months after the Battle of Bunker Hill and the rebels' siege of Boston, that Thomas Paine's pamphlet, *Common Sense,*★ provided the call and context for political freedom, and became the tipping point for broad public consensus supporting revolution and American political independence from Great Britain.

Quickly thereafter, the ka-ching of furs, free land, trade over the Santa-Fe trail with Spanish Mexico, buffalo hides, and gold led to national migration and Manifest Destiny.

★Common Sense sold over 100,000 copies in a country with only 3 million nonnative inhabitants, most of whom were illiterate.

During the next two centuries, the economic ballot caused the nation to evolve from a hunter-gatherer, to an agrarian to an industrial economy, and then to an information and service economy. These economic shifts produced the emergence of great cities, and the upheavals associated with new value systems, the mobility of Americans and the breakdown of traditional and extended families.

Increased discretionary income and the rise of consumer credit gave rise to the ka-ching of the consumer era and the social attitudes of the "Me" generation and the generations that followed.

As the economy transitioned to compete in the international, then global economy, different skills were demanded from employees and new methods were required for managers and employees to relate to each other—and for managers to relate to Shareowners. Methods of competition changed, industries migrated across oceans, companies failed, jobs were lost, and benefits disappeared. These changes broke down the traditional loyalty between employer and employee, employee and Shareowner. People developed new ways to relate to each other in the workplace, and learned to think about work differently. Psychologically, we became independent entrepreneurs again.

Notes

1. Data compiled and researched by the author.
2. James Flink, *The Automobile Age* (Cambridge: The MIT Press, 1990). Copyright 1988 MIT, courtesy of The MIT Press.
3. National Academy of Engineering, 2009. All rights reserved. From http://www.greatachievements.org with permission of the National Academy of Engineering.
4. Copyright 2008 by William G. Marshall (www.will-marshall.com). Mr. Marshall shows young people how to achieve financial success.