From the Editor

Facts and ideas from anywhere

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AMERICAN MEDICAL INSURANCE

John Steele Gordon, the author of numerous books, including *An Empire of Wealth: The Epic History of American Economic Power*, and the author of numerous columns in *Forbes*, *The New York Times*, *The Wall Street Journal*, and *Barron's*, recently penned a piece titled “A Short History of American Medical Insurance,” which

appeared in *Imprimis*, a publication of Hillsdale College.¹ What follows are all his ideas.

He opined that perhaps the most astonishing thing about modern medicine is just how modern it is. More than 90% of the “medicine” being practiced today did not exist in 1950. Two centuries ago, medicine, he wrote, was still an art, not a science. As recently as the 1920s, there was usually little that physicians could do once disease set in other than alleviate some of the symptoms. Around 1930 the power of the physician to cure and ameliorate disease began to increase substantially, and that power has continued to grow exponentially ever since. Today, the power to heal has become so mighty that increasingly there are technical means to extend life indefinitely. When physicians should cease their efforts and allow death to have its inevitable victory is an issue that cannot be evaded much longer.

The cost of US medicine is rising faster than any other major expenditure. In 1930, Americans spent \$2.8 billion on health care—\$23 per person and 3.5% of the gross domestic product. In 2015, we spent \$3 trillion—\$9536 per person and 15% of the gross domestic product. Adjusted for inflation, this means that per capita medical costs in the US have risen by a factor of 30 in 90 years. In the 1980s, when medical expenses in the US increased 117%, 43% of the rise was due to general inflation, 10% to the American population growing both larger and older, and 23% to pay for technology, treatments, and pharmaceuticals that had not been available when the decade began. The remaining 24% of the increase was due solely to an inflation peculiar to the American medical system itself. Steele wrote that whenever one segment of an economy exhibits, year after year, inflation above the general rate, and when there is no constraint

on supply, then either a cartel is in operation or there is a lack of price transparency or both, as in the case of American medical care. Steele indicated that medical inflation was deeply and innocently inserted into the US health care system just as the medical revolution began.

In 1850, the US had 40,755 people calling themselves physicians, more per capita than the country would have in 1970. Few had formal medical education, and many were charlatans. The stethoscope appeared in 1816. The first dental school opened in Baltimore in 1839. Anesthesia came in the 1840s. Clean water supplies in urban areas greatly reduced epidemics of water-borne diseases such as typhoid and cholera, which had ravaged cities for centuries. In the 1850s and 1860s, it was discovered that many diseases were caused by specific microorganisms, as was the infection of wounds, surgical and other. The germ theory of disease, the most powerful idea in the history of medicine, converted medicine into a science. Most of the advances in the late 19th and early 20th centuries, however, were preventive rather than curative. Louis Pasteur and others, using their new knowledge of microorganisms, began developing vaccines: rabies, whooping cough, and diphtheria. And then vitamin deficiencies such as pellagra began to decline in the early 20th century. When milk pasteurization began to be widely mandated around that time, the death rate among children plunged. In 1891, the death rate for American children in the first year of life was 125 per 1000. By 1925, it had been reduced to 16 per 1000 and life expectancy of Americans began to dramatically rise.

One fundamental change caused by the germ theory of disease—one not foreseen—was the spread of hospitals for treating the sick. Previously, hospitals were intended primarily for the very poor, especially those who were mentally ill or blind or who suffered from contagious diseases such as leprosy. Anyone who could afford better was treated at home or in a nursing facility operated by a private physician. Worse, until rigorous antiseptic and, later, aseptic procedures were adopted, hospitals were a prime factor in spreading disease, not curing it. Thus, until the late 19th century, hospitals were little more than a place for the poor and the desperate to die. In 1873, there were only 149 hospitals in the entire US. A century later, there were over 7000.

But hospitals had a financial problem from the beginning of scientific medicine. By their nature, they are extremely

labor intensive and expensive to operate. Moreover, their costs are relatively fixed and not fully dependent on the number of patients being served. The first hospital plan was introduced at Baylor Hospital in Dallas in 1929! The subscribers, some 1500 school teachers, paid \$6 a year in premiums, and Baylor Hospital agreed to provide up to 21 days of hospital care! Though this insurance protected schoolteachers from unexpected hospital costs in exchange for a modest fee, the driving purpose behind the idea was to improve the cash flow of the hospital. Thus, the scheme had an immediate appeal to other medical institutions and it quickly spread. Before long, groups of hospitals were banding together to offer plans that were honored at all participating institutions, giving subscribers a choice of which institution to use. This became the model for Blue Cross, which first started in Sacramento, California, in 1932.

Although called “insurance,” these hospital plans were unlike any other insurance policies. Previously, insurance had always been used to protect against unforeseen losses and came with a deductible. The first hospital plans, instead of protecting against catastrophe, paid all costs up to a certain limit. The reason: they were instituted not by insurance companies but by hospitals and were primarily designed to generate steady demand for hospital services and guarantee a regular cash flow.

In the early days of hospital insurance, this fundamental defect was hardly noticeable. Twenty-one days was a very long hospital stay, even in 1929. And with the relatively primitive medical technology then available, the daily cost of hospital care per patient was roughly the same whether the patient had a baby, a bad back, or a brain tumor. Today, this front-end type of hospital insurance usually does not cover what most of us need insurance against: the serious, long-term, expensive-to-cure illness. In the 1950s, major medical insurance, which does protect against catastrophe rather than misfortune, began to provide that sort of coverage. Unfortunately, it did not replace the old plans in most cases but simply supplemented them.

As Steele continued, the original hospital insurance also contained the seeds of two other major economic dislocations, unnoticed in the beginning; each has come to loom large. The first dislocation was that although the purchased hospital plans protected against unpredictable medical expenses, the plans only paid off if the medical expenses were incurred in a hospital. As a result, patients who could be treated as outpatients instead were treated in the hospital—the most expensive form of medical care. The second dislocation was that the hospital insurance did not provide indemnity coverage, which is when the insurance company pays for a loss and the customer decides how best to deal with it. The insurance company paid the bill for services covered by the policy, whatever the bill was. As a result, there was little incentive for the consumer of medical services to shop around. With someone else paying, patients quickly became relatively indifferent to the cost of medical care. These

dislocations suited the hospitals, which wanted to maximize the amount of services they provided and therefore maximize their cash flow. If patients are indifferent to the cost of medical services they buy, they are much more likely to buy more of them and the prices are going to go up. There is no price competition to keep prices in check.

The medical profession began to lobby in favor of retaining this system. In the mid-1930s, as Blue Cross plans spread rapidly around the country, state insurance departments moved to regulate them and force them to adhere to the same standards as regular insurance plans. Had hospital insurance come to be regulated like other insurance, those offering it would have begun acting more like insurance companies. But that did not happen, largely because physicians and hospitals, for whom the plans had been devised, moved to prevent it from happening. The American Hospital Association and the American Medical Association worked hard to exempt Blue Cross from most insurance regulations, offering in exchange to enroll anyone who applied and operating on a nonprofit basis.

The Internal Revenue Service, meanwhile, ruled that these companies were charitable organizations and thus exempted from federal taxes. Freed from taxes and the regulatory requirement to maintain large reserve funds, Blue Cross and Blue Shield (a plan that paid physicians’ fees as Blue Cross paid hospital costs) came to dominate the market in health care insurance, holding about half of the policies outstanding by 1940. To compete, private insurance companies were forced to model their policies along Blue Cross/Blue Shield lines. Thus, hospitals came to be paid almost always on a cost-plus basis, receiving the cost of the service provided plus a percentage to cover the cost of invested capital. Any incentive for the hospital to be efficient and reduce costs vanished.

In recent years, hospital use has been falling steadily as the population has gotten healthier and surgical procedures have become less traumatic. The result has been a steady increase in empty beds. There were over 7000 hospitals in the US in 1975 and about 5500 today. But, that reduction has not been enough. Because of the cost-plus way in which hospitals are paid, they do not compete for patients by means of price, which would force them to retrench and specialize. Instead, they compete for physician referrals, and physicians want empty beds available to ensure immediate admission and lots of fancy equipment, even if the hospital just down the block has the same equipment. The inevitable result is that hospital costs on a per-patient, per-day basis have skyrocketed.

Physicians, meanwhile, were paid for their services according to “reasonable and customary” charges. Physicians could bill whatever they wanted as long as others were charging roughly the same. The incentive to tack a few dollars onto the fee became strong. The incentive to take a few dollars off to increase market share ceased to exist. As increasing numbers of Americans came to be covered by health

insurance, physicians were no longer able to compete with one another.

During World War II, another feature of the American health care system developed: employer-paid health insurance. With 12 million working-aged men in the Armed Forces and the economy in overdrive, the American labor market was tight. Wartime wages and price controls, however, prevented companies from competing for available talent by means of increased wages and salaries. They had to compete with fringe benefits instead, and the free health insurance was tailor made for this purpose. The Internal Revenue Service ruled that the cost of employee health care insurance was a tax-deductible business expense, and in 1948 the National Labor Relations Board ruled that health benefits were subject to collective bargaining. Companies had no choice but to negotiate with the unions, which fought hard to get the maximal benefits. The problem was that company-paid health insurance further increased the distance between the consumer of medical care (the patient) and the purchaser of medical care (the employer). When individuals must pay for their own health insurance, they at least have an incentive to buy the most cost-effective plan available. Beginning in the 1940s, most Americans had no choice but to take whatever health care plan their employers chose to provide.

There was another aspect of employer-paid health insurance, unimagined when the system first began, that has had pernicious economic consequences. Insurers based the rates they charged on the total claims they expected to incur. Auto insurance determined this by looking at what percentage of a community's population had auto accidents in recent years and how much repairs cost in that community, a situation known as "community" rating. They also looked at the individual driver's record, the so-called experience rating. Most insurance policies are based on a combination of community and experience ratings, and for most forms of insurance the size of the community that is rated is quite large, eliminating the statistical anomalies that skew small samples. A person is not penalized because he happens to live on a block with a lot of lousy drivers. But employer-paid health insurance is an exception. It can be based on the data for each company's employees, allowing insurance companies to cherry-pick businesses with healthy employees, driving up the cost of insurance for all others. The effects of this practice are clear: 65% of workers without health insurance work for companies with 25 or fewer employees.

By 1960, as the medical revolution was gaining speed, the economically flawed private health care financing system was fully in place. Then two other events added to the gathering debacle. In 1965, the government entered the medical insurance market with Medicare for the elderly and Medicaid for the poor. Both physicians and hospitals fought tooth and nail to prevent what they called "socialized medicine" from gaining a foothold in the US. As a result of their strident opposition, when the two programs were finally enacted, they were structured much like Blue Cross/Blue

Shield, with the government picking up much of the cost. And when Medicare and Medicaid proved a bonanza for providers, their vehement opposition faded away. The two new systems greatly increased the number of people who could afford advanced medical care and the incomes of medical professionals soared, roughly doubling in the 1960s.

Perhaps the most important consequence of these new programs was the power over hospitals they gave to state governments, which became the largest single source of funds for virtually every major hospital in the country, giving them the power to influence or even dictate the policy decisions made by the hospitals. As a result, these decisions were increasingly made for political rather than medical or economic reasons. Closing surplus hospitals or converting them to specialized treatment centers, for example, became much more difficult. Those adversely affected—local neighborhoods and hospital workers' unions—naturally mobilized to prevent it. Society lost.

Finally, there was the litigation explosion of the last 50 years. For every medical malpractice suit filed in the US in 1969, 300 were filed in 1990! Though reforms at the state level (notably in Texas) have reduced the number, lawsuits have sharply driven up the cost of malpractice insurance—a cost passed directly on to patients and their insurance companies. Neurosurgeons, even with excellent records, can pay as much as \$300,000 a year for coverage. All physicians, including those in less lawsuit-prone specialties, also pay much higher premiums and are forced to order unnecessary tests and perform unnecessary procedures to avoid being sued.

Thus, medical costs began to rise over and above inflation, population growth, and the costs of medical advances. In 1930, we spent 3.5% of American gross domestic product on health care; in 1950, 4.5%; in 1970, 7.3%; in 1990, 12.2%. Today, we spend 17%. American medical care over this period has saved the lives of millions who could not have been saved before. Life expectancy today is nearly 79 years. Our care has relieved the pain and suffering of millions, but it has also become a monster that is devouring the economy.

Is there a way out? One possible answer, according to Steele, is a national health care service, such as that pioneered in Great Britain after World War II. But our federal government already runs three single-payer systems—Medicare, the Veterans Health Administration, and the Indian Health Service—each of which is in shambles and is noted for fraud, waste, and corruption. Why would we want to turn over all American medicine to those who have proved themselves incompetent to run a large part of it? A far better and less expensive alternative would be to reform the economics of the present system. The most important thing to do is to require medical service providers to make public their inclusive prices for all procedures. Most hospitals keep their prices hidden to charge more when they can, such as with the uninsured. A few facilities do post their prices. The Surgery

Center of Oklahoma does so on its website. A knee replacement would cost \$15,499; a mastectomy, \$6505; a rotator cuff repair, \$8260.

Once prices are known and can be compared, competition—capitalism's secret weapon—will immediately drive prices toward the low end and drain billions of excessive charges out of the system. Posting prices will also force hospitals to become more efficient and innovative to stay competitive.

Any politician who pontificates about reforming health care without talking about making prices public is carrying water for one or more of the powerful lobbyists that have stymied real reform, including the American Hospital Association, the American Medical Association, and the Health Workers Union. Additionally, we should reform how malpractice is handled. We should get rid of the so-called American rule, where both sides pay their own legal expenses regardless of outcome, and adopt the English rule, employed in the rest of the common law world, where the loser pays the expenses of both sides. And third, we need to ensure that consumers care about their medical care costs. Getting patients to shop for lower-cost services is vital.

A generous health insurance policy covers everything from a snuffle to a heart transplant. Obviously, it should not. An insurance policy that covers routine care is not even an insurance policy; it is a very expensive prepayment plan that jacks up premiums. Just as oil changes are not covered by automobile insurance, annual flu shots and scraped knees should not be covered by medical insurance. A solution would be for employers to provide major health insurance plus a health savings account to take care of routine health care. If the money in the account is not spent on health care, it is rolled over into the employee's 401k account at the end of the year, giving them an incentive to shop wisely for routine medical care.

Finally, wrote Steele, we need to get the practitioners of modern medicine to recognize an age-old reality: there is no cure for old age itself. For the time being, when the body begins to break down systematically, we should let nature take its course.

There are enormous forces arrayed against these economically sensible reforms. Defenders of the status quo are the most potent lobbyists in Washington, DC, and the state capitals. There are many proponents of a single-payer system to increase the power and scope of government. It will not be an easy fight.

HEALTH COVERAGE COST PER FAMILY IN THE USA IN 2018

Annual premiums rose 5% to \$19,616 for an employer-provided family plan in 2018, according to the yearly poll of employers by the nonprofit Kaiser Family Foundation.² Employers, seeking to blunt the cost of premiums, continue to boost the deductibles that workers must pay out of their pockets before insurance kicks in. The move lowers the

amount that workers must contribute for insurance out of their paychecks. Nationwide, workers paid \$5547 a year on average in premiums for a family plan in 2018, according to the Kaiser employer survey. That represents 29% of the total premium cost.

THE PRICE OF CANCER-CURING DRUGS

Dr. Ezekiel Emanuel, an oncologist and brother of the Chicago mayor and author of Obamacare, writes about the huge costs of the new immunotherapies for certain cancers.³ Traditional cancer chemotherapies indiscriminately kill both cancer cells and normal cells. One new immunotherapy, CAR-T (chimeric antigen receptor T-cell therapy), removes a patient's own immune cells and genetically re-engineers them to bind to a specific protein on the surface of the patient's cancer cells. Once reprogrammed, these T cells are infused into the patient, attacking only the cancer cells with the protein and sparing almost all normal cells. To date, hundreds of patients whose cancers did not respond to known chemotherapies have been treated with CAR-T. About two-thirds of children with acute leukemia and about one-third of adults with lymphoma and leukemia have achieved long-term remission and seem to be cured.

Based on these data, the Food and Drug Administration approved two CAR-T treatments in 2017 and 2018: Kymriah, sold by Novartis A.G., and Yescarta, sold by Gilda Sciences Inc. Today, there are over 400 ongoing clinical trials using similar cellular immunotherapies on different cancers.

The cost of Kymriah is \$373,000 to \$475,000 per patient per year, depending on the type of cancer, and Yescarta is \$373,000 per patient per year. When the cost of other necessary medical support is added, the total average cost for treatment rises anywhere from \$500,000 to \$850,000 per patient per year. The extraordinary costs for these treatments present a dilemma: a miracle drug for cancer is available but its costs, when multiplied across the population that needs it, could bankrupt the country. Consider what would happen if the new drugs were used to treat 250,000 cancer patients per year, just 40% of Americans who die annually from cancer. At \$373,000 per patient, a Kymriah-type immunotherapy treatment would increase drug spending in the USA by \$93 billion a year. This would mean an almost 20% increase in the country's total annual drug spending, for just one drug. That figure amounts to \$300 per American or \$500 per American if associated medical services are included. Dr. Emanuel argued for negotiated prices between pharmaceutical companies and Medicare and private insurers. A drug price, he argued, should be determined by how much the drug improves people's health. Using such value-based pricing would substantially lower the prices of cancer drugs. Some pharmaceutical manufacturers have selectively accepted value-based pricing contracts; others complain that such

pricing would reduce profits and thereby reduce their research investments. Dr. Emanuel argued that this assertion should be viewed with skepticism.

Dr. Emanuel argued for a second principle to guide drug price negotiations: affordability for the nation. The drugs approved by the Food and Drug Administration each year should be priced in such a way as to increase total drug spending by no more than gross domestic product growth plus 1.5%. The Boston-based Institute for Clinical and Economic Research expects that figure to be about \$15 billion for 2018. If 30 new drugs were approved, no single one could add more than \$500 million to the total. This approach would create enormous incentives for drug companies to reduce costs.

Dr. Emanuel, as an oncologist, stated that he is thrilled that we are reaching the point where patients once deemed hopelessly incurable can be cured. But as a citizen, he is worried that high drug prices and high health care costs generally will overwhelm the economy and the federal budget. Unless something changes, the new immunotherapies for treating cancer will present a terrible choice between saving lives and seeing the country go broke.

AIR AMBULANCE SERVICES

Many regional hospitals, particularly in the South, are closing or reducing services at an unprecedented pace.⁴ This creates a new challenge: the use of for-profit airlift services to get trauma patients and other patients to distant emergency facilities and the new financial anxieties it creates. At least 87 regional hospitals have closed since 2010. As health care shifts from a fee-for-service model to being paid only for outcomes, care is increasingly consolidating into centers of excellence. This change has caused a spike in the use of airlift services, such as helicopters, to carry trauma and other patients greater distances to reach a suitable hospital. Presently, about \$30,000+ per ride is the cost for these ambulance services. As their growth increases, insurance companies and health systems will want to negotiate lower contract rates with air ambulance services. Charges are often pushed higher by state requirements related to crew staffing and the need to maintain additional helicopters for redundancies and maintenance. To lower costs, communities need to forecast how much demand they truly expect for these services across a defined geography.

EXERCISE FOR OPIATE ADDICTION

The Koch brothers have made a multimillion-dollar investment in the Phoenix,⁵ a gymnasium that is free and tailored to patrons trying to beat drug addiction. The staff T-shirts are emblazoned with celebratory statements about sobriety. Gyms are nearly 11,000 square feet in size. The Phoenix is based in Denver and is spreading nationally with the financial assistance of the Koch brothers. The Centers for

Disease Control and Prevention indicated that the number of drug overdose deaths topped 70,000 in 2017, up more than 10% over the previous year. Increasingly, evidence supports exercise as a tool to stay sober. Steady exercise regulates the brain circuitry linked to feelings of well-being. The Phoenix, now in 12 states, could expand to every state. Thus, another great benefit of exercise.

CONTROLLING CLIMATE CHANGE

Fred Krupp, who is president of the Environmental Defense Fund, wrote an appealing piece on managing the climate.⁶ He had three suggestions:

1. *Slow deforestation and restore damaged forests.* Properly managed woodlands help avoid emissions by not burning the trees and drawing carbon dioxide from the atmosphere through photosynthesis. Forests could deliver a quarter or more of the carbon emission reductions needed by 2030—but only if rainforests are more valuable alive than dead.
2. *Cut short-term climate pollutants such as methane.* These gases, he wrote, stay in the atmosphere for less time than carbon dioxide but trap far more heat while there. Methane, the chief component of natural gas, is responsible for a quarter of all current warming. The largest industrial source of methane pollution is the global oil and gas industry. Krupp's organization, the Environmental Defense Fund, has a goal to reduce methane pollutants from oil and gas by 45% by 2025. This reduction would deliver the same climate benefit over the next 20 years as closing about one-third of the world's coal-fired power plants.
3. *Stop letting companies pollute for free.* In most of the world there is no corporate incentive for corporations to reduce pollution. If they had to pay every time they put a ton of emissions into the atmosphere, they would find creative ways to reduce pollution, in his view.

These three recommendations certainly sound reasonable to me.

GLOBAL FIREARMS

There are roughly 1 billion guns in the world and in 2016 they ended the lives of about 251,000 individuals in 195 countries and territories.⁷ Those deaths included homicides, suicides, and accidents. This number of gun fatalities did not include those killed in armed conflicts. Six countries that make up less than 10% of the world's population—Brazil, USA, Mexico, Columbia, Venezuela, and Guatemala—accounted for just over half of the world's gun-related deaths. In 2001, there were 15 civilian gun deaths for every military gun death. The only exception was 1994, when Rwandans engaged in organized slaughter along tribal lines. Worldwide, 64% of gun-related deaths were considered a homicide.

From country to country, there were stark differences in the motivations of the people wielding guns. In affluent countries, such as Australia, Canada, and Germany, suicides typically outnumbered homicides by considerable margins. In the USA in 2016, there were nearly twice as many gun-related suicides as gun-related homicides. That year, the USA accounted for 35% of all firearm suicides in the world. In countries where drug trafficking and gang violence are pervasive scourges, gun-related homicides dominated. In China and Saudi Arabia, deaths by firearms were usually unintentional.

There were an estimated 209,000 firearm deaths in 1990 and 251,000 in 2016. The global population expanded rapidly during that period. As a result, between 1990 and 2016, worldwide rates of gun deaths decreased by 1%. Singapore had the fewest firearm-related deaths in 2016—only 7. The risk of being killed by a bullet in that country was literally one in a million. Japan was a close second, with an estimated 455 gun-related deaths in 2016 and a risk of two in a million. Both countries have strict limits on gun ownership. The US, by comparison, had about 1060 gun-related deaths per 1 million people.

Firearms cut down people—men overwhelmingly—who are in the prime of life (between the ages of 15 and 40). In 2016, they killed 7220 children before they reached their 14th birthday. Boys in this age group died at 2.5 times the rate of girls. Guns cut short the lives of women, too, with homicides vastly outnumbering suicides.

AMERICAN CEMETERIES ON NORMANDY BEACH, FRANCE

In June 2018, I took a riverboat cruise up the Seine River from Paris to Normandy. I had never seen the Normandy Beach and was anxious to do so. There are 9387 crosses and Stars of David arranged with military precision on a bluff overlooking Omaha Beach, one of the six landing sites of the Allies and one of the two landing sites for American troops. Buried in this hallowed American ground are 45 sets of brothers, four women, a father and his son, three Medal of Honor recipients, and two sons of President Theodore Roosevelt. Along with thousands of others, they paid the price between 1941 and 1945 for the USA to help bring stability and peace to a world that without our leadership would probably have succumbed. Our US “boys” took up arms to liberate countries they had never visited and risked their lives for people they had never met. Our boys and their allies fought not just for peace abroad but for the freedoms we take for granted here at home. The 9387 names etched on the crosses and stars represent a tiny fraction of the spilled blood needed to defeat a world order diametrically opposed to our democratic values. What does their sacrifice stand for today, a lifetime later, a lifetime they never had? Standing in that cemetery in France reaffirmed to me that the greatness of America is, in part, founded upon our commitment to be a source and a defender of stability in the

world, our willingness to defend freedoms that many other nations deny their citizens.

DR. BENJAMIN RUSH (1745–1813), VISIONARY PHYSICIAN AND FOUNDING FATHER

Two books have appeared recently on Dr. Benjamin Rush, one by Steven Fried (597 pages)⁸ and one by Harlow Giles Unger (300 pages).⁹ These two authors in their separate books have produced sympathetic and readable reassessments of Rush’s remarkable career, intended to secure what they consider to be his rightful place as a leading founding father and signer of the Declaration of Independence. The authors inevitably covered similar ground and drew upon common sources. Both relied heavily on Rush’s prodigious output of publications and his lively and wide-ranging personal correspondence. Their books reveal a dedicated humanitarian with an enduring influence upon American medicine, not least through the estimated 3000 physicians he trained. Neither author ignored the contradictions in Rush’s character, flaws that mired him in controversy and helped to explain why he required rehabilitation.

Benjamin Rush was 5 years old when his father, a Pennsylvanian farmer and gunsmith, died. Detecting signs of precocious intelligence, his mother sent the youngster to boarding school, where he progressed so swiftly that at the age of 13 he gained admittance to the College of New Jersey (now Princeton University). He graduated in a year and was apprenticed in medicine to Philadelphia’s foremost physician, John Redman. In 1766, Rush continued his studies at the University of Edinburgh, then rated the best medical school in the British empire. His arrival coincided with the flowering of the Scottish Enlightenment, a vigorous offshoot of the intellectual movement that championed rational thought and questioned the exercise of unjustified authority. Armed with a letter of introduction from Benjamin Franklin, who was then Pennsylvania’s agent in London, Rush met some of the era’s most influential figures: Catherine McCauley, Samuel Johnson, John Wilkes, Benjamin West, and Sir Joshua Reynolds.

After almost 3 years abroad and still in his early 20s, Rush returned to Philadelphia as a qualified physician. While struggling to attract paying patients, he treated the city’s poor, venturing into slums where most of his competitors refused to go. An appointment as professor of chemistry at the College of Philadelphia gave him essential income and status, which he bolstered by publishing medical articles. Driven by a tireless energy, he promoted a range of worthy causes against any and every social evil he encountered. Rush was the first American physician to argue the baleful influence of strong alcohol and tobacco, an unorthodox view that riled consumers and producers alike. Even more controversial was his attack upon slavery, an institution entrenched in many of Britain’s American colonies. To many of his contemporaries, Rush was an inveterate meddler. Even Rush’s

wife, Julia, who bore him 13 children, was exasperated that his good work left little time for family.

Rush repeatedly warned that the royal ministers were intent upon oppressing all Americans. In 1775, he befriended the Englishman Thomas Payne. Rush not only encouraged Payne to write his pamphlet, *Common Sense*, which persuaded many colonials to fight for independence, but claimed that he had originated its title. Rush was elected to the Continental Congress in June 1776, in time to sign the final version of the Declaration. Late that year, after George Washington's beaten army was pushed back across the Delaware River and Philadelphia's militia marched to his assistance, Rush volunteered his medical skills. He helped tend the wounded from the Second Battle of Trenton, on January 2, 1777, and the next day witnessed the bloody aftermath of Washington's victory at Princeton. Much later Rush was appointed surgeon general of the Continental Army's so-called Middle Department—a key geographical sector that included Pennsylvania. He had ambitious plans for reform and outlined them in a pamphlet titled *Directions for Preserving the Health of Soldiers*. He wrote, "A greater proportion of men have perished from sickness in our Army than have fallen by the sword." To curb that toll, Rush urged radical changes in food, clothing, and hygiene. He unleashed a barrage of unrestrained letters to his friends in Congress, and they kindled a feud with his superior, Dr. William Chiffin.

In January 1778, Rush resigned his post and resumed medical practice in now Patriot Philadelphia. When Britain recognized American independence in 1783, Rush was among those who realized that the war was, as he put it, merely the "first act of the great drama of the American Revolution." He was a staunch supporter of the Constitution and other causes: the foundation of new colleges, advanced education for women, and the abolition of capital punishment for all crimes, including murder. Rush was the first American physician to treat mental illness as a disease rather than as criminal behavior or "the devil's work." His *Medical Inquiries and Observations Upon the Diseases of the Mind* was a groundbreaking study, anticipating psychotherapy and occupational therapy. It belatedly earned him the title "Father of American Psychiatry."

Rush was not perfect, of course. He relied on traditional techniques. He never deviated from bloodletting and purging to rid the body of disease. As a result, patients suffering from fevers were weakened further. This drastic approach drew growing criticism when Rush applied it wholesale during the epidemic of yellow fever, which ravaged Philadelphia in 1793. Selflessly nursing those stricken by what was believed to be a contagious disease, Rush treated his patients with copious bleeding coupled with frequent purges.

Given his many undoubted achievements, why was Rush relegated to the supporting cast of founders? Rush's intimacy, according to Fried, with so many famous men worked

against him. He wrote, "Adams and Jefferson especially had shared years of confidences about their feelings, their politics, their religion, even their bathroom habits with Dr. Rush." They had no desire to see such disclosures preserved for history. Within weeks of Rush's death in 1813, Jefferson was seeking the return of especially sensitive letters. Adams dreaded that a complete collection of Rush's correspondence would be published.

Rush himself had always suspected that his outspoken views would affect his reputation, observing that "the most acceptable men in practical society have been those who have never shocked their contemporaries, by opposing popular or common opinions." He added, "Men of opposite characters, like objects placed too near the eye, are seldom seen distinctly by the age in which they live." Through the efforts of Mr. Fried and Mr. Unger, what Benjamin Rush characterized as "the distant and more enlightened generation" is now better placed to judge him.

HELEN KELLER (1880–1968)

My mother often spoke of Helen Keller and her courage. In September 2018, the Texas State Board of Education voted to streamline the social studies curriculum in public schools by removing some of the historical figures that students are required to study.¹⁰ Among those removed were Helen Keller, Hillary Clinton, and Barry Goldwater. Before she was 2 years old, Helen Keller was struck blind and deaf by an illness. Nevertheless, she went on to publish 12 books, lecture in 35 countries, and change the world's perception of the blind, the deaf, and the mute.¹¹ Her teacher, Anne Sullivan, miraculously lifted her out of silence and darkness by teaching her first the sign for water and eventually teaching her to read Braille and write and speak in her own voice. In 1904, Keller graduated from Radcliffe College (the Harvard for women), becoming the first blind and deaf American to earn a bachelor's degree. Her autobiography, *The Story of My Life*, published in 1903 when she was 22 years old, has sold millions of copies worldwide and is mandatory reading in many social studies classes. Her articles and speeches are some of the most inspiring written in the English language. And her practical and charitable work for the world's deaf-blind population, through the American Foundation for the Blind and other organizations, remains unparalleled.

Beyond her charitable work, Keller was an early proponent of women's suffrage and reproductive rights. A proponent also of workers' rights and free speech, she was a self-described "democratic socialist," co-founder of the American Civil Liberties Union and a lifelong supporter of the NAACP. *Time* magazine picked her as one of the most influential people of the 20th century. She was "a champion of the disabled and an inspiration to hundreds of millions around the world."

Helen Keller needs to be put back on the list of historical figures required to be taught in Texas! “A happy life,” Keller wrote in a 1933 article for *The Home* magazine, “consists not in the absence, but in the mastery of hardships ... [and] the simplest way to be happy is to do good.”

THE FIRST PERSON ON THE MOON

I recently saw the movie *First Man*, the story of mankind’s boldest adventure thus far, the Apollo 11 mission that reached the moon 50 years ago. I remember watching that event but did not realize the extreme danger until seeing this movie. The film, which was adapted from a book by James R. Hansen, focuses on the engineer Neil Armstrong and his family.¹² The movie shows Armstrong’s anguish behind his cool façade: the inconsolable loss of a 2-year-old daughter, Karen, to cancer, and his painful inability to bid his two young sons a proper goodbye before leaving home for the mission. It is chilling watching Neil Armstrong and his copilot, Dave Scott, dock their Gemini 8 capsule with an Agena target vehicle. The action begins in 1961, 8 years before the flight of Apollo 11. Armstrong, as a test pilot, struggles to control his descent from the ionosphere in a rocket-powered X-15 after bouncing unintentionally and almost catastrophically off the Earth’s atmosphere.

First Man covers a lot of space and ground: a daunting succession of failures, catastrophe, and near-catastrophe leading to the lunar landing; domestic opposition to the cost of the program; competition between the USA and Soviet Union that turned a scientific venture with a large political charge into a flat-out race for international prestige. The program’s cost was not only fiscal; the price paid by the astronauts’ families is dramatized vividly. *First Man* does full justice to the mission’s climax, from the power of the launch, through the precarious moon touchdown, to four boots on the *luna firma* of our planet’s pockmarked satellite. The moonscape is stirring: no trees, no grass, no softness or sweetness, only two astronauts alive to the danger but improbably alive, against incalculable odds, and bound for glory on their return. Today’s smartphone has something

like 50 times the computing power available in the multiple computers used for the moon landing!

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