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EXCURSUS #28

One of a series of monographs that expands the discussion of important topics examined in *The Natural State of Medical Practice*.[1]

THE UNPRIVILEGED CITIZEN AND MODERNITY

Summary: This excursus analyzes the origin of modernity and concludes it had nothing to do with the Renaissance, the Scientific Revolution, or the Enlightenment. Modernity finds its origin solely in practical discoveries and inventions of individuals free to seek self-betterment that followed on the 16th C Reformation in the West. The idea that modernity is merely the latest stage over tens of thousands of years in the inevitable march of mankind from beastliness to perfection is incorrect. What has instead been inevitable has been the magnificent flourishing of modernity over several centuries that promptly followed on increasing individual freedom for unprivileged populations in Europe. That flourishing was not the result of Classical Era culture, philosophical ruminations, or purposeful design. It resulted from increasing recognition of natural rights following the Reformation, and the resulting release of human ingenuity and its resulting goodness was an example of spontaneous order. Emerging from an unprivileged population, it needed no planning, no philosophic direction, and no guidance from a privileged class. The Renaissance was unrelated to, the Scientific Revolution resulted from, and the Enlightenment was in part an abuse of, the emerging protection of natural rights that followed on the Reformation in the West.

Definitions

Modernity as used herein means the increase in life expectancy, the moral abolition of slavery, and the security and comfort that we have generated over the past few centuries and now enjoy in the West and which is spreading globally.
Unprivileged are the common man and woman, as opposed to those who have been born into or have been the recipient of largesse from upper (privileged) classes. The Constitution of the United States forbids a privileged class.

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[1] Volume, chapter and page number of otherwise unreferenced statements in this monograph refer to the version of the four volumes of *The Natural State of Medical Practice* as published by Liberty Hill Press:

Vol. 1 – *The Natural State of Medical Practice*: An Isagorial Theory of Human Progress
Vol. 2 – *The Natural State of Medical Practice*: Hippocratic Evidence
Vol. 3 - *The Natural State of Medical Practice*: Escape from Egalitarianism
Vol. 4 – *The Natural State of Medical Pra*ctice: Implications

Dating of social ages and identifying notable persons is subject to opinion, so I have used specific sequential dates and notable persons for the Renaissance, Scientific Revolution, and Enlightenment as are readily available on Wikipedia:

Renaissance	1400-1543
Scientific Revolution	1543-1687
Enlightenment	1687-1805

Introduction

Arguments for the supreme importance of the Reformation as the source of natural rights protection and the beneficence of modernity in Western civilization are addressed in the volumes of *The Natural State of Medical Practice*. But political and economic discourse that peaked during the Enlightenment (1687-1805) is usually credited with a defining defense of natural rights. This unfairly ignores, however, the contributions of the earliest Reformation era advocates of individual freedom, some of whom faced severe penalties for their outspoken candor. This is relevant to the mission of this excursus, which is to stress the importance of the common man and woman, the unprivileged, not only for implementation of the security, comfort, and long lives we now as a society enjoy, but also for their initiation.

Excursus 16 reviews the evolution of the idea of all persons being equal before God, tracing its axiomatic natural rights from the Reformation to the Declaration of Independence and the ninth amendment to the Constitution of the United States. But to confirm the intimacy of early Reformation thinking with the beneficence of modernity I include the following as a historical reminder of the original inspiration underlying it all.

> ***The Twelve Articles of the Peasants***
> (Popularly translated by Frederick Engels, the *Twelve Articles* were demands formally presented by serfs to German aristocracy in March, 1525. As a consequence, the serf population of large areas of Germany was to suffer one hundred thousand battlefield deaths and perhaps another hundred thousand deaths from the associated devastation, the Peasants' War of 1524-1527. Aristocrat loses were "minimal." *Article three* is the most relevant to this excursus.)
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> *The Third Article*. – It has been the custom hitherto for men to hold us as their own property, which is pitiable enough, considering that Christ has delivered and redeemed us all, without exception, by the shedding of His precious blood, the lowly as well as the great. Accordingly, it is consistent with Scripture that we should be free and wish to be so. Not that we would wish to be absolutely free and under no authority. God does not teach us that we should lead a disorderly life in the lusts of the flesh, but that we should love the Lord our God and our neighbour. We would gladly observe all this as God has commanded us in the celebration of the communion. He has not commanded us not to obey the authorities, but rather that we should be humble, not only towards those in authority, but towards every one. We are thus ready to yield obedience according to God's law to our elected and regular authorities in all proper things becoming to a Christian. We, therefore, take it for granted that you will release us from serfdom as true Christians, unless it should be shown us from the Gospel that we are serfs.

As discussed in previous excursus, modernity emerged from the Reformation. Some, however, consider the Renaissance, the Scientific Revolution, and the Enlightenment to have been essential stepping-stones to modernity, with the Reformation a peripheral and sometimes annoying Protestant phenomenon that merely commercialized and dispersed the scientific advances of a brilliant few. The present analysis, however, argues that modernity was solely the consequence of the Reformation's evolving freedoms for the unprivileged, and that the Renaissance was insignificant, the Scientific Revolution was early modernity rather than its precursor, and the Enlightenment was an intellectual fine-tuning of the struggle for natural rights already under way.

Role of the Renaissance (1400-1543)

The Renaissance is preeminently associated with the emergence and appreciation of classical culture. Its philosophical, rhetorical and moral features were admired, studied, and imitated because it was thought that principles thus derived could be used for the betterment of society. But, using medical practice as a gauge of progress, it was concluded in volume one of *The Natural State of Medical Practice* that, despite veneration of the verbiage of classical medical works, its knowledge was not usefully improved. The following is a list of prominent Renaissance era scientists with medical affiliations:

List 1: Notable Renaissance individuals with some medical affiliation and their father's vocation, their patronage, and Reformation association [2]

Beneficiary	**Dates**	**Father's vocation, Patron(s), and medical significance**
Servetus, Michael	1511-1553	*notary; Hugues de la Porte, Symphorien Champier; pulmonary Circulation; embraced Reformation initially
Lonicer, Adam	1528-1586	*philologist; City of Frankfurt, Count Phillipp of Nassau; dedicated *Kreuterbuch* to the Count; prominent herbalist educated at the University of Marburg, the oldest Protestant university; favored Luther and Zwingli
Cordus, Valerius	1515-1544	*physician;invented ether in 1540; was from a strongly Lutheran family, attended Wittenburg University, spent some time in Padua collecting botanicals
Fabricius, Hieronymus	1533-1619	*poor nobility; various Aristocratic families; famed anatomist who provided public dissections, physician training at the University of Padua in 1559
Brassavola, Antonio	1500-1555	? ; tracheotomy; physician to Charles V, Francis I, Henry VIII,
Pare, Ambroise	1510-1590	*cabinet maker; Gen. Montejan, Duke de Vendome, Charles IX; poor, couldn't afford licensure, became a famed barber surgeon/obstetrician, was a Huguenot
Fallopio, Gabriele	1522-1562	*nobility; he was a priest, professor at University of Padua

[2] The Renaissance has sometimes been categorized by region (*e.g.*, Northern Renaissance, the Polish Renaissance), but the dominant scientists mentioned here were dispersed throughout Europe, from Spain to Poland (Copernicus is discussed next under Scientific Revolution). An excellent source of relevant biographical information, including patrons, is provided on the Internet via the Galileo Project in the work of Richard S. Westfall, *Catalog of the Scientific Community in the 16th and 17th Centuries*, which contains biographical information on more than six hundred prominent scientists.

Vesalius, Andrea	1514-1564	*apothecary with connections; Charles V; born in Netherlands, physician training at University of Leuven, and the same year became Professor at University of Padua
Paracelsus	1493-1541	*physician; Ecclesiastical and aristocratic patrons; toxicologist from Switzerland, specifically Schwyz Canton, friend of publisher Froben, his religious convictions shaped by, but not consistent with, the Reformation
Fracastoro, Girolamo	1478-1553	*nobility; General Alviano, Cardinals Farnese and Pietro Bembo; Bishop Giberti; predecessor of germ theory, from Verona, professor at University of Padua; epidemiology of syphilis
Cardano, Gerolamo	1501-1576	*lawyer; Vatican (Gregory XIII), Sen. Filippo Archinto, Marquis D'Avalos; identified bone conduction of sound, spent time at University of Padua
Dubois, Jacques	1478-1555	weaver; Court: Henry II; anatomist who deferred to Hippocrates and Galen

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*Individuals identified with an asterisk had some Reformation affiliation, either personally with a sect or tangentially but with significant exposure over time to its nascent expressions of freedom and religious tolerance.

From List 1 it is tempting to conclude that modern medical progress first appeared during the Renaissance. But medical progress is always trying to emerge in any society. Discoveries and inventions relevant to disease and injury are always occurring, but for the most part they promptly disappear because of the autocratic nature of societies throughout history and prehistory. Thus, our knowledge of their presence in the Renaissance reflects to a great degree the importance of their patrons. There is no question about the great significance of patronage to culture and the generational passage of knowledge. Without patronage the scientific contributions of prominent Renaissance scientists might never have occurred or would have remained unknown. This sounds good.

But patronage has a negative side as well as a positive one. It was not until the late 18th C that modernity in medicine was being fully revealed. As Gutenberg was printing books by 1450 and the publishing of Classical Era medical texts was well under way within a few decades, why did it take three centuries for medical progress to clearly emerge? The answer in part is "patronage." (1) patronage favored ideas of a relatively few select individuals, whereas, in post-Reformation regions where early accommodation of natural rights would occur, the entire spectrum of new practitioners throughout society could contribute to the pool of ideas; [3] and (2) patronage was for the social benefit of the patron, not society. In contrast, post-Reformation early medical practitioners were able to improve their services by forming collegial associations, among which many would publish their findings in innovative medical journals, inexpensive and available to all, that permitted vetting and confirmation of the wide compass of ideas.

[3] It was because of the largesse and protection of patrons that many Renaissance artists, philosophers, and scientists were granted the opportunity to realize their inventions and discoveries. As Prof. Richard Jebb stated, "Augustus was to Virgil and Horace, what Lorenzo de' Medici was to members of the Florentine Academy. Patrons usually were wealthy prominent individuals, although there was some group patronage. A contractual arrangement was common. The patron, therefore, provided select individuals with financial assistance and independence, within limits, to exploit their individual interests and abilities. Thus, patrons played a permissive but important role in intellectual advances, and for this they should receive praise. Contemporaries did praise them, and artists and others often dedicated their works to their patrons.

Also notable from List 1 is that eleven of the twelve individuals had significant Reformation associations, five with direct affiliations with Protestant sects and six with the University of Padua and the Republic of Venice that, in contrast to the rest of Italy, remained open and friendly to the Reformation.[4] This suggests that the mere association with Reformation thinking was sufficient to bring on modernity. On closer analysis, however, none with a Protestant association nor the one without it initiated a direct path to modernity. Vesalius, Dubois, and Fabricius were anatomists, and it was John Locke, himself a physician, who stated that anatomical discoveries amounted to little more than "more superficies...to stare at," Lonicer was a herbalist, and Pare popularized podalic version that was already in use by local midwives. Valerius Cordus invented ether in 1540, but its value for general anesthesia was not recognized until Morton's demonstration in Boston in 1846. Pliny commented on the usefulness of increased sound transmission through wood and Cardano in 1550 identified bone conduction of sound, but it was Weber in 1834 who rediscovered it and introduced its clinical relevance. Hippocratic physicians mentioned the problems with the tracheotomy, and Brassavola published his successful tracheotomy case in 1546, but the great clinical value of tracheotomy as demonstrated by Bretonneau would not appear until 1832. The Hippocratics identified the pulmonary circulation as a separate mechanism for nourishing the lungs, and Michael Servetus described the pulmonary circulation in 1553, but it was William Harvey who separately rediscovered, expanded, and reported on it in 1628. Even then Harvey commented on the negative reception of his ideas by contemporary physicians, and into the 19th C Rene Laennec, inventor of the stethoscope, misunderstood some of Harvey's explanations.[5]

The important conclusions from the preceding paragraph are the following. (1) The association of the Renaissance with the Reformation was strong, even four of the five Italians on List 1 having important associations with Venice and the University of Padua. (2) Despite that association, Renaissance medical discoveries and inventions had insignificant generational passage. Yet modernity ensued. How can these two issues be reconciled?

What was needed was the *association*, in this particular instance collegial professional medical associations, something Renaissance favorites lacked. The printing press was widespread and all in List 1 were contemporaneously published, but this did not sufficiently propagate their knowledge. Because of patronage, that knowledge spread to a limited few, of whom many were professors in medieval university faculties academically constrained by their Classical Era veneration. Separate professional associations had yet to form, the first major such association being the Royal Society in Great Britain in 1660. More on this follows.

As a final point for clarification, it is expected of an ethical author of a scientific treatise to give credit to those who first discovered, invented, or even hypothesized something novel that could be viewed as a possible precursor or even harbinger of the author's discovery, invention, or hypothesis. This can at times imply a logical progression from the former to the latter, a progression that often does not exist.[6] The prominent historian of science, Prof. George Sarton,

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[4] Venice has been called the 75th city of the Reformation, a place to where Italian Huguenots and other dissenters fled to escape the Counter-Reformation, and home of the dominant publishers of early classical texts.

[5] McMichael, J., *History of Atrial Fibrillation* 1628-1819 Harvey-de Senac-Laennec, *Br. Heart J*. 48:193-197, 1982.

[6] Hans Krebs, Nobel Laureate, in *The Making of a Scientist* (*Nature*, 215:1441-1445, 1967), went so far as to describe a "genealogy" for scientific discovery in which a cascade of "teacher-pupil" relationships at "centers of excellence" explained the clustering of discovery and invention at certain academic institutions. But this represented a genealogy of opportunity more than it did of genius. There is no denying the value of instruction, but the discoveries and inventions under discussion were for the most part *de novo* innovations, a new start.

wrote: "There are no inventions ex nihilo."[7] His statement may be a fine-sounding aphorism in praise of our predecessors, but it is rhetorically intemperate and certainly does not apply to medicine. By shouldering the same tools used by the Hippocratics, the unprivileged practitioners in post-Reformation Europe discovered many of them anew and acquired many more. The benefaction that individual liberty bestows on man's potential is ever waiting to be exploited, and had even the limited individual freedoms of ancient Greek physicians been allowed to persist, much of modernity might have evolved two thousand years ago.[8]

Role of the scientific revolution (1543-1687)

As background, it is to be noted that (1) curiosity and motivation for self-betterment are universal characteristics of mankind, and therefore ingenious observations and ideas continually appear in every society, their significance dependent on the nature of society, and (2) based on the definition that genius reflects "great natural ability," it is reasonable to claim that virtually every individual is a genius in one way or another should the appropriate environment and time permit its expression.[9] That genius, prior to the printing press, was expressed locally, but with publication a degree of permanence was bestowed on those ideas, and today we can therefore acknowledge the genius of the more fortunate geniuses.

The number of prominent early scientists and other notables in the West included as initiators of the Scientific Revolution varies according to its chronological definition. To avoid personal opinion, the following scientists are included based on the publication date of their prominent works, with an asterisk indicating those with an affiliation with the Reformation.

List 2: Scientific Revolution notables with fathers' vocation and Reformation association

Copernicus	(1473-1543)	wealthy merchant
*Johannes Kepler	(1571-1630),	son of a mercenary soldier; Lutheran
*Harvey, William	(1578-1657)	jurat and mayor; physician, University of Padua, 1602
Borelli, Giovanni	(1608-1679)	Spanish infantryman; patrons: Queen Christina of Sweden
*Boyle, Robert	(1627-1691)	Earl of Cork; Anglican (early Huguenot tutor)
Willis, Thomas	(1621-1675)	farmer; Thomas Iles, Archbishop Gilbert Sheldon
*Galileo	(1564-1642)	Lutenist; Cosimo de Medici, flourished at Univ. of Padua
*Leeuwenhoek, Antonie	(1632-1723)	basket maker; Calvinist
Valsalva, Anton	(1666-1723)	jeweler; did not seek patronage.

[7] Sarton, G., in *Arabic Scientific Literature*, 1948, later printed in: Sarton, G., *Islamic Science*, in *Near Eastern Culture and Society*, Princeton, 1951, T. C. Young, editor, p. 88.

[8] As I have stated elsewhere, initiation of medical progress is simple, quick, easy, cheap, and readily accessible. It is the medical history and physical examination. And see volume 1 of *The Natural State of Medical Practice*, Bk 2, for its analysis of ancient Greek medicine.

[9] "No claim for the superiority in intelligence of one race over another has ever withstood scientific scrutiny. Nor does a greater number of biological mutations occur in some races or cultures than in others. Actually, biological mutations produce humans with the potential to grow into geniuses at a steady rate at all times and among all peoples. That virtually no geniuses are recorded for a thousand years in ancient Athens does not mean that they were not produced. Nor does the astonishing cluster of geniuses that appeared in the fifth and fourth centuries B.C. in Athens mean that biological mutations were produced in greater number at that time. The rate of mutation remained the same; what changed was the culture, which allowed great men to flourish." Farb, P., in *Man's Rise to Civilization*, New York, 1968, p. 20.

Malpighi, Marcello	(1628-1694)	wealthy landowner; Ferdinand II; Giovanni Borelli
Kircher, Athanasius	(1602-1680)	professor; from poor family, but was a Jesuit Priest; polymath
*Santorio, Santorio	(1561-1636)	nobleman; Venetian, a professor at University of Padua
*Christian Huygens	(1629-1695)	secretary to nobility; Protestant, educ. Netherland universities.
*Isaac Newton	(1643-1727)	sheep farmer; Protestant, with Puritan Cambridge University

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To summarize List 2, of the great names usually given as representing the Scientific Revolution in the West, eight of the fourteen had some affiliation with the Reformation. Copernicus was a product of the Renaissance era but his prominence can be attributed to the Lutheran Kepler, who, in accepting and building on Copernican data, would promote later Copernican "flourishing." Valsalva, Willis and Malpighi were anatomists, and Borelli was mathematician and physicist.

As with the Renaissance, the prominence of Reformation affiliations among Scientific Revolution notables is obvious, although by this time the message and the consequences good and bad of the Reformation had time to mature. But what is most relevant is that there was a widening public interest in new ideas. The 16th C saw the doubling of the rate of formation of new universities, among which new medical faculties would be able to draw on the capabilities of the new brand of physicians emerging in post-Reformation regions.[10] The literacy rate by mid-16th C was about fifty percent in Great Britain and the Netherlands, with somewhat less in France and Germany. And into the next century a prominent example of public interest was The Royal Society in England, officially recognized by Charles II in 1660. From List 2, Huygens, Newton, Malpighi, Leeuwenhoek, and Valsalva were members of this association, one of the earliest such. Medical associations appeared throughout Europe in the 18th C, although the Royal Faculty of Physicians and Surgeons of Glasgow was formed in 1599 and the College of Physicians had been founded in London in 1518. As a result, there was a broadening contemporary interest in Kepler, Newton, Galileo, Harvey, and Valsalva, the latter a professor who used the newly invented microscope in his anatomical studies.

Thus, the "scientific revolution" was not a cause of modernity. It was merely early manifestation of modernity already under way. Its distinction is founded on its widening public accessibility and resulting interest, plus the appeal of having a pool of experts applying their "genius" to specific problems, for this made their findings more believable to an increasingly literate public. Applying the same argument to the initiation of medical progress in the Renaissance, those scientific notables also had prominent Reformation affiliations. The problem was that they had no associations through which their early ideas could be expanded. The final proof for attributing the implementation of modernity to associations among the post-Reformation unprivileged population follows.

Role of the Enlightenment (1687-1804)

The harbinger of the Enlightenment is traditionally charged to Francis Bacon (1561-1626). He recognized that understanding natural processes would lead to the development or exploitation of things that made life easier and more enjoyable, and that this, rather than the mere

[10] A prime example of this would be the University of Leiden, founded in 1575, where Herman Boerhaave, the "Dutch Hippocrates," began teaching in 1701.

acquisition of knowledge, was a proper goal of study. He stated that if science were made a Vestal Virgin one should not expect her to bear fruit. "Improving the improvable" was, to him, of far greater importance than seeking to know the unknowable, and susceptibility to improvement is essential for progress to occur. Galileo had advanced scientific observation by adding to it the objectivity of calculation, its full expression emerging with Isaac Newton. The ability of man to understand the workings of his world and the universe released a flood of invention in Europe that would lead to the Industrial Revolution. This age, which also involved a reassessment of man's relationship with God, has been called the Enlightenment. An analogy has been drawn between Enlightenment and Aristotelian thought of 4th C BC Greece, with science again in the vanguard.

The "roots" of the Enlightenment, according to the Britannica, were found in Classical Era philosophers, the Renaissance, and the Scientific Revolution. It was primarily an intellectual movement based on the perceived ability of human reason to resolve the problems of humanity. Its exponents are known primarily for their philosophical interpretations.

List 3: Enlightenment notables		**Father's vocation; religious association**
*Rene Descartes	1596-1650	Jurist; mercenary in Protestant army, time in Neth.
*John Locke	1632-1704	Clerk to Justices of the Peace of a village; Puritan
*Jean-Jacques Rousseau	1712-1778	Watchmaker; Protestant
Henri de Saint-Simon	1760-1825	Marquis
*Montesquieu	1689-1755	Soldier of noble ancestry; Huguenot
Voltaire	1694-1778	minor treasury official; anti-religion
Denis Diderot	1713-1784	cutler
*Adam Smith	1723-1790	solicitor; Presbyterian
*David Hume	1711-1776	judge, lower nobility; agnostic, but Protestant family
*Mary Wollstonecraft	1759-1797	weaver/farmer; Unitarian
*Thomas Hobbes	1588-1679	vicar; Anglican
Cesare Beccaria	1738-1794	aristocrat
*Francis Bacon	1561-1626	aristocrat; Protestant
*Immanuel Kant	1724-1804	harness-maker; Lutheran
Marquis de Condorcet	1743-1794	aristocrat
Emilie du Chatelet	1706-1749	lesser nobility
*Thomas Paine	1737-1809	farmer, corsetmaker; Quaker

The Enlightenment was a period of conflict in Italy where the Renaissance tyrant was embattled, and in Europe where the limits of royal authority were tested. The latter often prevailed, and so the Enlightenment has also been identified as the "Age of Absolutism." The autocracy was seeking support from citizenry, so there were struggles among aristocrats, legislatures, and monarchs that led to centralized governments with a large civil service considered to be precursors of modern nation-states. But at the same time scientific reasoning was being applied not only to material matters but also to society and to man himself.

The importance to the Enlightenment of Classical Era philosophers, especially Aristotle, was minimal. They had been perennial favorites in the West and the focus of Renaissance humanism. Thus, they represented a rebirth of Classical Era ideals rather than new ideas, and the Enlightenment was about new ideas. But what was so notable and different at the time of the Enlightenment was (1) increasing academic freedom of expression in regions of Europe that permitted discussion of direct political implications of philosophical topics, and, more

importantly, (2) widespread interest in previously closeted ideas that was spreading throughout much of society. By the time of the Enlightenment (mid-17th C), publishing and literacy had already dramatically increased in Great Britain and the Netherlands, somewhat less in Germany and France. This increasing freedom of expression was not the result of Classical Era studies or early scientific discoveries. It reflected greater political autonomy spreading throughout the general population in those regions and greater access to the popular printing press for disseminating new ideas. Just as an invention is considered important if society deems it so, it was the enlightening citizenry that made the philosophs important. Without that public opinion, for example, Rousseau would have been viewed as a rather distasteful person. Unfortunately, French public opinion was swayed by a few of his admirers to a degree that helped precipitate the French Revolution.

Much is made about the variety of philosophical ideas emerging from the Enlightenment regarding the course of human society. The many scholars reflecting on natural rights and natural law and their relevance to the American and the French revolutions are well-known. Important today is the philosophical support for unique forms of authoritarian governance, including socialism and communism, that find their justification in some of those Enlightenment philosophies.[11] But the relevant point here is that philosophizing is a human characteristic in all ages. It can be argued, therefore, that it was the opportunity for free and diverse philosophical speculation and propagation reflecting the freedom and modernity that already existed that was the important factor during the Age of Enlightenment, rather than the institutionalizing of philosophical topics themselves.

It is notable that eleven of the seventeen philosophers in List 3 had some degree of post-Reformation affiliation.

In summary, the fruits of the Enlightenment were of a nebulous intellectual nature, part of the chain of profound speculation that has always existed in the minds of humankind. Although social thinking of the Enlightenment was evocative, modernity was already well under way. The recognition and protection of natural rights of the unprivileged population permitted modernity to appear. It did not need to be discovered, rediscovered, or optimized by philosophical justification. Modernity instead had been the result of the ingenuity and motivation intrinsic to human nature and expressed in spontaneous order since the Reformation. We can propose, therefore, that the roots of the Enlightenment were not to be found in the Classical Era writings, the Renaissance, or the scientific revolution. They were to be found solely in the Reformation and represented a side effect of the bestirring of the unprivileged.

Role of the unprivileged[12]

For the sake of argument and as a general statement derived from political history of humanity, there have been two social divisions in virtually all societies: the privileged and the much larger population of unprivileged. And both are oriented toward betterment of the

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[11] For a succinct and moving review of this topic, see: Hamowy, R., *F. A. Hayek, on the Occasion of the Centenary of His Birth*, in *Cato Journal*, 19:279-287, 1999,

[12] A strict comprehensive definition of the unprivileged is not proposed for purposes of this excursus, for the concept is far-reaching and can be subtle in expression. The enormity of the latter in the West was expressed in John Stuart Mill's *The Subjection of Women* (1869) and in women's suffrage in the 20th C. The consequences to humanity are incalculable and deserve study.

privileged, either personally or as personification of a society's greater good. But something happened several centuries ago that permitted the unprivileged to engage in betterment for themselves rather than their betters. Prior to that time all societies were autocratic. [13] Whether based on kinship, strength, fear, or cleverness, a class system prevailed, the upper class engaged in maintaining its wealth, power, and position, and, willingly or not, the lower class assisting. Everyone was busy, but, helped by the occasional war, civilizations could not progress. This is confirmed by life expectancy, which for the unprivileged and for many of the privileged averaged about thirty-five years, approximately that of Neanderthals some 10,000 years earlier.[14] But over the past two centuries, life expectancy now approaches eighty years. What has changed?

The unprivileged are the common man and woman, as opposed to those who have been born into or have been the recipient of largesse from upper classes. As mentioned in volume 3 of *The Natural State of Medical Practice*, here are some definitions: Merriam-Webster: "the undistinguished commoner lacking class or rank distinction or special attributes." Thesaurus.com: "lowest common denominator," "average Joe." Cambridge Advanced Learner's Dictionary & Thesaurus: "the hoi polloi," "the man/woman in the street." The eminent historian, Hendrik Willem van Loon, went further and identified two classes of humans: *Homo agitans*, "those that do," and *Homo classificans*, "those who classify what the others have done." He estimated the latter to outnumber the former by a million to one![15] These injustices were noted by G. K Chesterton, who decried "the familiar routine of oppressing him [the Common Man] in practice and adoring him in theory."

It is the unprivileged, common, citizen to which humanity owes modernity. As discussed in Excursus 11 ("Pressing Implications of *The Natural State of Medical Prac*tice") and as this excursus explains, there is no such thing as the "common" man and woman. Each person is uncommon. Those in the privileged and unprivileged classes are equal in that regard. And in both classes variegated ingenuity should be equally distributed. If this is so, then the benefits of ingenuity might be expected to appear at the same rate in both the privileged and unprivileged classes in proportion to their numbers. This is unlikely ever to be determined because definitions are vague and accurate metrics are unavailable. But it is logical that impeding or defrauding the ingenuity of the unprivileged is imprudent for any society. And yet this has been the story of mankind since its creation, that is, until the Reformation.

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[13] There is no question that brave and virtuous leaders appear from time to time despite autocratic sentiments, and that there can be an apparent necessity for autocratic governance in emergencies. But the concept of the privileged/unprivileged classes can be overt, indirect, or insinuating and implies the presence of autocratic governance that has dominated virtually the entirety of humanity since its creation. See also for a contemporary global assessment of autocracies: Tulloch, G., *Autocracy*, Dordrecht, 1987.

[14] Bocquet-Appel, J., and Degioanni, A., *Neanderthal Demographic Estimates*, in *Current Anthropology*, 54:S202-S213, 2013.

[15] Van Loon, W. H., *Ancient and Medieval Civilizations*, in *Whither Mankind*, New York, 1930, Charles A. Beard, editor, p. 42. And the Confucian common man is portrayed thus: "After Fan Chi had left, the Master [Confucius] said, What a petty man, Fan Xu (Fan Chi)! If those in higher positions love ritual, then none of the common people will venture to be disrespectful. If those in higher positions love rightness, then none of the common people will venture to be disobedient. If those in higher positions love trustworthiness, then none of the common people will venture to act insincerely. And if such a condition prevails, then the people from the four lands adjacent, bearing their little children strapped to their backs, will gather around. What need to study grain growing?" He is saying to his disciple, Fan Chi, "You are part of the upper crust, so don't worry about learning agriculture. Treat the common folk nicely and they will do your bidding." *Confucius, & Watson, B. (2007). The Analects of Confucius. Columbia University Press.*

List 4 identifies important contributors to early medical progress in the West. They have had, for the most part, quite modest and relatively unprivileged family origins.

List 4: Early modern medicine notables		**Father's vocation**
Leopold Auenbrugger	1722-1809	innkeeper
Humphry Davy	1778-1829	woodcarver
Jan Swammerdam	1637-1680	apothecary
Robert Hooke	1635-1703	Anglican priest
Anton Leeuwenhoek	1632-1723	basket-maker
Ignaz Semmelweis	1818-1865	grocer
Hermann Boerhaave	1668-1738	"frugal pastor"
Alexander Gordon	1743-1827	tenant farmer
William Withering	1741-1799	surgeon
Edward Stone	1702-1768	vicar
William Cullen	1710-1790	lawyer
Benjamin Rush	1746-1813	farmer
Thomas Sydenham	1624-1689	"Puritan gentry"
William Harvey	1578-1657	jurat of village
Hermann von Helmholtz	1821-1894	school headmaster
Thomas Latta	1796-1833	no birth records (fishing village)
Carl Wunderlich	1815-1877	local medical officer
Pierre-Fidele Bretonneau	1778-1862	surgeon
Peter Plett	1766-1823	? (Peter himself was a home tutor)
Edward Jenner	1749-1823	vicar
James Lind	1716-1794	merchant
William Smellie	1697-1763	local merchant
Rene Laennec	1781-1826	civil servant
John Hunter	1728-1793	farmer

By the mid-18th C the entire population of many European nations was becoming literate and involved to some degree in political thinking. There was conflict involving religious dogma, but in effect the Reformation's effects were becoming universal, if not always congenial.

But from the preceding four lists in this excursus about seventy-five percent of the "notables" were, based on the father's occupation, from the unprivileged population, of which few were wealthy. It is interesting that none of the early modern medical notables List 4 can be identified as from a privileged family. And yet it is not a surprise. Whereas published discoveries from the Renaissance had first to be approved by their patrons and often by religious authorities, the lowly practitioner in Graz, Berkeley, Voorhout, Taban, and Quimper had the opportunity to announce to their profession at large a new observation or invention and in return receive collegial criticism.

Public opinion is often swayed to undue reverence for the powerful and the privileged of past civilizations because contemporary imposing architecture and art is presented as reflecting their perspicacity and competence. That, however, is misleading, for, just as Renaissance art was for its patrons, those ancient artistic endeavors were for the pleasure or empowerment of the ruling classes. It is the physical durability of paintings, sculpture, and architecture that permits today's appreciation of ancient and Renaissance artistic genius, art that was produced not by the powerful and the privileged, but by the unprivileged.

It can be concluded that, subsequent to the Reformation and using medicine as a gauge of human progress, ingenuity and thereby modernity emerged overwhelmingly from the unprivileged population. A toxic effect of privilege on progress is probable because it inhibits

ingenuity of the unprivileged, limits its own contribution to progress by focusing on maintaining a privileged status, and exaggerates the unavoidable locus of incompetence that inevitably accompanies leadership positions by relying on others of the privileged class to maintain that leadership rather than seeking ingenuity from the unprivileged.

Role of association

The individual has received most attention in this excursus, for as a relatively free agent the individual can attempt self-betterment and might invent or discover something that will improve his or her life. That effort in turn can be beneficial to family and friends. But a discovery or invention by an individual will be of only local value if its knowledge remains only in the hands of its discoverer (although recent advances in communication can modify that dynamic). Furthermore, the expertise related to that discovery or invention will have been assessed by the intellect of only one person, the discoverer. To improve and disseminate discovery or invention, a necessity for human progress, something else is required. De Tocqueville identified that need:

> **Nothing, in my opinion, is more deserving of our attention than the intellectual and moral associations of America. The political and industrial associations of that country strike us forcibly; but the others elude our observation, or if we discover them we understand them imperfectly, because we have hardly ever seen anything of the kind. It must, however, be acknowledged that they are as necessary to the American people as the former, and perhaps more so. *In democratic countries the science of association is the mother of science; the progress of all the rest depends upon the progress it has made.*[16] Amongst the laws which rule human societies there is one which seems to be more precise and clearer than all others. If men are to remain civilized, or to become so, the art of associating together must grow and improve in the same ratio in which the equality of conditions is increased.**
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> **Alexis de Tocqueville (1805-1859)[17]**

What is needed is the "association." In the field of science, if several individuals form a collegial association and contribute, share, or participate in a novel betterment, the more widespread will be the awareness of its usefulness, the repair of its defects, and the more likely there will be vertical transmission of its benefits. An added benefit is to be derived if an association carries with it a good public opinion, for this adds to the reputation of each member. All of society and their progeny can be beneficiaries of a fruitful association. This is the foundation for human progress.

But what sort of association is needed? The ancient Greeks identified it as the κοινόν (koinon) defined in volume 3 of *The Natural State of Medical Practice* as "an autonomous voluntary and democratic group sharing a common self-interest that meets in common council to

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[16] Dans les pays democratiques, la science de l'association est la science-mere; le progres de toutes les autres depend des progres de celle-la. The translation is accurate.

[17] *Democracy in America*, vol. II, sect. 2, chap. 5, (translation of final paragraphs by Henry Reeve, italics added). The referenced chapter by Tocqueville comprehends all types of associations. There is a tendency in academia to exclusively concentrate on his use of associations as bases for activism in the public or "civil" sphere. I view this as a narrow interpretation. Implicit in his overall assessment of associations is self-governance. Management of local issues by local people decouples them from central government: the more widespread the associations the less governmental presence and the less risk of tyranny. To this I would also add is his implication, in the italicized line, that associations are *the mother of science* in that they include those associations that encourage, vet and display the ingenuity and inventiveness of the people, the essence of this excursus.

freely and openly exchange information and experience pertinent to all its members." A distinction must be made between an association and an organization, and convenient general definitions are:

> An **organization** is an entity of invited members that has a specified mission, its members can be affected by losses, there is a formal leadership structure, and meetings are formal.
> An **association** is a group open to anyone, has no mission but there is a common personal interest, meets informally to share resources, and members do not entail losses.

Of the two, the modern "association" most resembles the ancient Greek "koinon."

In conclusion, logic would suggest that those who are privileged in a society should be the major source of beneficence. They are more likely to have the time and the means to develop or command an idea. *The Natural State of Medical Practice*, however, shows exactly the opposite. It is from the unprivileged population in the West to which our increase in longevity and other modern forms of beneficence have been forthcoming. Beware the organized privileged class!