

Can Civilization Save Us? A Study in Civilizational Analysis and Legal History

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Let me say at the outset that I have no illusions that I can provide solutions to all the threats--climate change, ecological destruction, civil wars, terrorism, etc.--that we face today, because we civilizationalists operate at a high level of analysis.

On the other hand, I do believe that we can identify a number of *civilizational complexes* that emerged only in the West and that will be indispensable for guiding whatever efforts can be made to ameliorate the threats we face.

Civilizational Analysis

Just to be clear about the level of analysis with which I operate: I mean by the term *civilizations* social entities that tend to be multi-ethnic, often multi-lingual and even multi-national but which share underlying religious, legal, and philosophical assumptions. Consequently such formations have very large-scale coherence. The fundamental symbolic and institutional structures of such entities produce transnational effects that give both coherence and developmental design to the whole configuration. From this point of view, "A civilization constitutes a kind of moral milieu encompassing a certain number of nations, each national culture being only a particular form of the whole."¹ As Emile Durkheim and Marcel Mauss put it,

social phenomena that are not strictly attached to a determinate social organism do exist; they extend into areas that reach beyond the national territory or they develop over periods of time that exceed the history of a single society. They have a life which is in some ways supranational.²

I take Europe as the exemplar of that kind of civilizational formation. Other examples of this kind of formation would obviously include the Islamic world, China, Indian, and Russian Orthodox civilization. Of course there are many mixed cases but here I only want to set out the extraordinary consequences of the European civilizational development, set against the background of the divergent developments of Islam and China.

¹ Emile Durkheim and Marcel Mauss "Note on the Notion of Civilization," *Social Research*, vol. 38, no. 4 (1971): 809-813, at p. 811.

² Durkheim and Mauss, *ibid.*, p. 810.

The Formative Period

During the High Middle Ages, especially the twelfth and thirteenth centuries, Europe experienced a great transformation that put it on an entirely different footing than any other part of the world. This was above all a great legal revolution that laid the foundations for what are now seen as modern political institutions.³ These include the rise of parliamentary democracy, the foundations of what we know as due process of law, the very idea of elective representation in all forms of corporate bodies, and not least of all, the legal autonomy of cities and towns. All of these innovations contributed to the establishment of elements of constitutionalism that became the hallmark of modernity.⁴

Moreover, this broad legal transformation laid the foundations for the rise and autonomous development of universities that enabled the unfettered pursuit of modern science that has continued to the present. Furthermore, the structural stability of these new institutions gave a new measure of predictability, providing a new foundation for economic development that has been called the "commercial revolution" of the thirteenth century.⁵ This legal revolution is the too-little-discussed foundation for the rise of modern capitalism as well.

At the center of this development one finds the legal and political principle of treating collective actors as a whole body--a corporation, or corporate entity. This is the fundamental basis of all forms of *legal autonomy*--that is, the legal autonomy of cities and towns, and professional associations such as doctors and lawyers, but also charitable organizations and, of course, the foundation for the legal autonomy enjoyed by different kinds of business and commercial organizations. The now infamous recent Supreme Court decision in the *Citizens United v. Federal Election Commission* is clearly based on this early modern legal notion of legally autonomous entities referred to as corporations.

But let me add just one more aspect of the legal revolution that has been completely lost from view by all of our fashionable digital presentism. That is, consider for a moment what the idea of *legal autonomy* means in the sphere of government and legislation. It

³ This assessment was first announced by Harold Berman in his landmark study, *Law and Revolution. The Formation of the Western Legal Tradition* (Cambridge: Harvard University Press, 1983).

⁴ I discussed these different legal systems in *The Rise of Early Modern Science: Islam, China and the West* (New York: Cambridge University Press, 2nd edition, 2003), especially chapters 4 and 7. I am also drawing from a manuscript in progress, "Legal Evolution: European vs Islamic Law," in two parts.

⁵ See Raymond De Roover, "The Commercial Revolution of the Thirteenth Century," in *Enterprise and Secular Change: Readings in Economic History*, edited by Frederic C. Lane and Jelle C. Riemersma (American Economic Association, 1953): 80-85; Robert S. Lopez, *The Commercial Revolution of the Middle Ages, 950-1350* (Cambridge University Press, 1977); and now van Bavel, "The Medieval Origins of Capitalism in the Netherlands," *BMCN/LCHR* (2010) v. 125: 45-79, especially pp. 60-66; idem, *Manors and Markets. Economy and Society in the Low Countries, 500-1600* (Oxford University Press, 2010), pp. 93-99; and Tina De Moor, "The Silent Revolution: A New Perspective on the Emergence of Commons, Guilds, and Other Forms of Corporate Collective Action in Western Europe," *International Review of Social History* 53 (2008): 179- 212.

means that some *public body*--some corporate entity, some group of citizens--is capable of composing and promulgating *new laws* that transcend Biblical injunctions, customary law, Quranic legal prescriptions, or even edicts issued by an Emperor in China. But of course, that power of autonomous legislation did not exist in Chinese, Islamic, or Indian law of the early modern period. The same applies to Russia. This was an entirely European developmental outcome.

In short, any adequate appreciation of the medieval legal revolution in Europe puts before us the realization that the vast landscape of freedoms and powers of modern institutions, including the idea of *due process of law*, are European medieval inventions--spelled out by the canonists--without parallel anywhere else in the world. Those innovations stand at the very heart of what we think of modern political institutions, especially parliamentary democracy, constitutionalism, *election by consent*, and not least of all, the institutional structures protecting freedom of thought and expression. Accordingly, I want to set out a brief compass of the nature of institutional innovations so that we can see the connection with the present moment. Once having grasped those connections, we might not be as pessimistic about the future of "civilization" or the putative "decline of the West."

Due Process of Law

Now let me say just a few words about the idea of "due process of law"--something I believe all Americans and Europeans consider vital to the whole political process.

Although this development drew heavily on the tradition of the rediscovered Roman Civil Law (*Corpus Juris Civilis*), it was the canonists--and some civilians--whose creative and innovative work defined the whole process. What the European medievals did was to spell out just what due process meant, how it was to be applied, when, and to whom. By the end of the twelfth century, this new system had been formally articulated as the *ordo iudicarius* (the system of legal procedure).⁶

Perhaps the first to define the idea of due process was Stephen, Bishop of Tournai (1138-1203). According to him,

The defendant shall be summoned before his own judge and be legitimately called by three edicts or one peremptory edict. He must be permitted to have legitimate delays. The accusations must be formally presented in writing. Legitimate

⁶ Among others see Kenneth Pennington, "Law, Procedure of" *Dictionary of the Middle Ages*, Vol. 7 (1986), esp. pp. 504-505; idem., *The Prince and the Law, 1200-1600: Sovereignty and Rights in the Western Legal Tradition* (Berkeley: University of California Press, 1993); idem., "Due Process..."; Susan Reynolds, "The Emergence of Professional Law in the Long Twelfth Century," *Law and History Review* 21 #2 (2003): 347-366; and James Brundage, *Medieval Canon Law*, chapter 6 (London: Longman, 1995); Linda Fowler-Mangerl, *Ordo Iudicarius vel ordo iudicarius*.

witnesses must be produced. A decision may be rendered only after someone has been convicted or confessed. The decision must be in writing.⁷

It is also notable in our context that virtually all records, whatever they be--the initial complaint to the court (the *libellus*), summonses, testimony, reports or contracts--were presented in writing and filed away. These records became part of the official court records, kept by proctors or notaries in an official location, always bearing the signature or Seal of the official acting head of the court; not as in the case of Islamic law, irregularly filed by the judge or his clerk in the "qadi's diwan,"⁸ his private files usually maintained in his home. So insecure were such documentary arrangements in Islamic law that until the last decade of the twentieth century, specialists in Islamic law had concluded that such records did not exist. Even so, very few have ever been recovered, and it was only with the Ottomans after the sixteenth century that a building was actually designated in cities and towns for that purpose.⁹

To amplify the view of Stephen of Tournai stated above, it should be noted that European legal doctrine (that was articulated by scholars in legal treatises, established in court cases and declared in Papal decretals), expected that every trial must involve a plaintiff and a defendant, advocates for those two parties, the appearance of witnesses, the presence of court recorders such as clerks, proctors and notaries who record the names of those present at the trial, what was said, and so on.¹⁰ This was established legal procedure by the end of the twelfth century-- all worked out by legal scholars who were attached either to the Papal court or to the schools and emerging universities. It was not just worked out as a matter of "customary practice" but ensconced in major textbooks used all across Europe from the thirteenth century onward-- Tancred's *Ordo iudicale* [1214-16] and Durand's *Mirror for Judges (Speculum iudiciale)* [ca.1271]). There were also Papal letters and official statements (*concilia*) circulated across Europe and adopted as mandatory by local courts.

What is notable about this new court procedure was that it was a man-made set of *consensual ordinances*. Though it had earlier roots in Roman law, and though some jurists who articulated its contours believed that it had earlier foundations (if not origins)

⁷ As cited in Pennington, "Due Process," p. 20. and Linda Fowler-Magerl, *Ordo iudiciorum vel ordo iudiciarius* (Frankfurt am Main: V. Klostermann, 1984), p. 27.

⁸ Wael B. Halaq, "The 'qadi's diwan (*sijill*)' before the Ottomans," *Bulletin of the School of Oriental and African Studies* 61 (1998): 415- 436

⁹ Hallaq Wael B. *Shari'a: Theory, Practice, Transformation* (New York: Cambridge University Press, 2009), p. 343n9. Even in 20th century Yemen, there are reports of individuals involved with court proceedings who, having been presented to a judge, lost the documents because the judge subsequently died. Such documents seem to be more private than public. Brinkley Messick, "Literacy and the Law: Documents and Document Specialists in Yemen," in *Law and Islam in the Middle East* edited by Daisy Hilse Dwyer, (New York: Bergin & Garvey, 1990), p. 64.

¹⁰ James Brundage, "The Practice of Canon Law," in *Medieval Origins*, chapter 10; and the sources in the previous note. Tancred: "the service of advocates is essential in lawsuits," as cited in *ibid*, p. 171.

in Biblical stories of Adam and Eve being tried by God, it was a set of juridical conventions, restated and refined by a broad group of scholars and Popes in the second half of the twelfth century. Numerous letters by Pope Alexander III as well as Pope Innocent III contributed to the definition of due process.¹¹ What this tells us is that the European medievals were constantly engaged in the process of legal innovation, of refining and articulating the rules and procedures that they felt necessary for the smooth, efficient and just working of their legal system.

At the same time Romano-canonical procedure specified that each court was meant to run according to a calendar--once the plaintiff's complaint was presented, the presiding judge would establish a date for a hearing along with specified sessions for the hearing of the testimony of witnesses. Although legitimate delays were granted to those who applied, all proceedings were determined by a court schedule, not the whim of the defendant.¹²

Furthermore, when a limited number of witnesses were scheduled to be heard (during three or fewer sessions), the opposing advocates prepared a list of *questions to be put* to the witnesses by the judge (or official examiner) for close questioning individually and in private. Every effort was made by the interrogatories provided to the judge and by the opposing attorneys to separate direct evidence from hearsay testimony. The witnesses were sworn to tell the truth "the whole truth and nothing but the truth about everything they knew in connection with the action in which they were to testify."¹³ They were also cautioned to testify only about events they had seen and heard, "but not about what they believed or thought they heard from others."

An example of such close questioning comes from the Canterbury Court of England in the thirteenth century in the case of Master Robert de Picheford concerning the ownership of a church in the Diocese of Lincoln. The interrogatories submitted on behalf of the defendant Thomas de Nevill stated,

First, the examiners are to hear what the witnesses say of their own motion and to enquire as to the source of their information about each of the articles [submitted by Master Robert]. If they say that Robert was in possession of the church of Houghton as rector by himself or others from 26 July to 3 August 1268, they are to be asked whether they know this from seeing, hearing, knowledge, belief or public report. If they say seeing, ask where, when, the nature of the possession whether natural or civil, mental or physical, and how long before the feast Robert possessed the church and whether continuously or at intervals.¹⁴

¹¹ Pennington op. cit., pp. 13-17.

¹² Richard Helmholz, *Marriage Litigation in Medieval England* (Cambridge: Cambridge University Press, 1974), chapters 4 and 5.

¹³ Brundage, *Medieval Origins* (2008): 436.

¹⁴ Norma Adams and Charles Donahue, *Selected Cases from the Ecclesiastical Courts of the Province of Canterbury c. 1200-1301* (London: The Selden Society, 1981), p. 269.

In another case from the same court, the witnesses were to be asked, "how they know [that the defendant's submissions to the court] are true, who made the proposition on behalf of the monks, before whom, the year, month, day, hour, place, those present, etc; what tithes were at stake, how they happened to testify; whether they are clerks or laymen."¹⁵ As I suggested earlier, you will not find this kind of a clearly articulated due process of law in Islamic, Chinese, Indian,¹⁶ or indeed, Russian¹⁷ law during the period we are talking about.

Second, I need to point out that these elements of due process that evolved in Europe over the course of the twelfth and thirteenth centuries were also applied to the prince and the Pope alike. In contrast, we need to notice that there were no equivalent legal structures and protocols that could be called upon to restrain czars, sultans, emirs and emperors in the other civilizational areas of the world. The legal apparatus and legal conceptions such as these outside Europe were simply absent. The developments we are talking about are, of course, examples of what we mean by the imposition of the rule of law, not the rule of men. That process is never complete and is ongoing. But the European medievals made huge strides in that direction.

Let me reiterate that this new system of law with its clear definition of due process and other legal innovations was carried all across Europe because the Church set up ecclesiastical courts wherever it went. Beyond that, civilian lawyers were trained in the same system because they might be called upon to defend a case in an ecclesiastical court and because the new legal system was being recognized as the *ius commune*, the common law of Europe.

Islamic Law

Now to make these comparative civilizational contrasts clearer, let me add here just a few comments on Islamic law and its very different history. While it is true that there were customary rules governing Islamic legal procedure, the process tended to be highly informal, even though it began by translating a plaintiff's claim into the language of Islamic law by the judge. A plaintiff could approach the qadi very informally, perhaps walking with him in the qadi's court yard, while explaining his religious problem. The

¹⁵ Ibid, p. 211, the Case of The Prior and Monks of Stogursey c. John de Winton, Rector of Over Stowey, Diocese of Bath and Wells, 1271-1272.

¹⁶ See Donald R. David, *The Spirit of Hindu Law* (New York: Cambridge University Press, 2010); and Timothy Lubin, Donald R. Davis, and Jayanth Krishnan, *Hinduism and Law: An Introduction* (New York: Cambridge University Press, 2010).

¹⁷ On the very belated development of Russia's legal system, see Harold Berman, "The Rule of Law and the Law-Based State (Rechtsstaat)" with Special Reference to the Soviet Union," pp. 43-60 in *Toward the "rule of law" in Russia?: Political and Legal Reform in the Transition Period*, edited by Donald D. Barry (Armonk, New York: M. E. Sharpe, 1992).

judge would then, perhaps with the assistance of this clerk, translate the petitioner's complaint into legal language necessary for a formal hearing. This stands in contrast to the European situation where nothing could be done before seeking the counsel of an attorney, specifying the justiciable issues. For as medieval legal scholar Dorothy Owen put it, in the later middle ages of the thirteenth and fourteenth centuries,

a clerk could not resign his benefice, appoint an official deputy, or conduct an election, a layman could not begin or continue a cause in an ecclesiastical court, or bring a will to probate if he did not employ a legally qualified proctor to draw up and present the appropriate documents. A bishop's or archdeacon's affairs could only be carried on with legal advice from men skilled in the law (*iurisperiti*). A royal government needed to be represented in diplomatic business by men skilled in the Roman (civil) law...¹⁸

The rules of Islamic procedure, however, used throughout the classical and early modern period tended toward customary procedure, and were entirely based on Quranic injunctions. Consequently, even later Islamic manuals of legal procedure contain no reforms or innovations,¹⁹ nothing like the European innovations codified in the thirteenth century.

Most notable of missing conceptions was that of the defense attorney--such a conception did not exist in Islamic²⁰ or for that matter in Chinese law.²¹ Consequently, the vital process of cross-questioning all witnesses (as noted above) did not exist in Islamic law. To be sure, judges did question witnesses, but it tended to be less than impartial as the judge ended up siding with one side or the other with the judge explicitly rejecting the witness testimony or other evidence presented. Of course there was *no jury* system. The judge in effect served as judge and jury (or prosecutor and jury) in simple and complex cases.

One of the consequences of this absence of a *defense attorney*, especially in criminal cases, was that the judge generally accepted police reports without questioning by counsel. This attitude persisted in many Muslim countries all the way to the twentieth century, and one can see it operating in late twentieth century Afghanistan. Looking at several dozen cases ruled on by the highest courts in Afghanistan in the early 1970s--long after the system had been (incompletely) displaced by a European code system--one finds the judges rarely summarizing or carefully evaluating the evidence presented by police

¹⁸ Dorothy Owen, *The Medieval Canon Law. Teaching, Literature and Transmission* (Cambridge: Cambridge University Press, 1990), p. 2.

¹⁹ See the manuals of Nawawi, al-Mawadi, Ibn Rushd, and the *Almamgiriyyah*.

²⁰ Tyan, *Historie d'Organisation Judiciaire en Pays d'Islam* (Leiden: E. J. Brill, 2nd edition, 1960), p. 267.

²¹ Derk Bodde, "Basic Concepts of Chinese Law," in *Law in Imperial China*; and Geoffrey MacCormack, *The Spirit of Traditional Chinese Law* (Athens, GA: University of Georgia Press, 1996).

authorities, or that of other witnesses. Such evidence is simply accepted at face value, with all attention given to the question of punishment.²²

Likewise, we have all heard of the recent decisions of Egyptian judges, condemning to death, in one case over 500 accused, and in the other 600 accused, obviously without proper procedures or careful weighing of evidence.²³ Moreover, the Egyptian system was reformed and reorganized following European Civil law protocols a century ago, but inculcating *Western legal culture and sensibilities* maybe something quite different.

It was possible in Islamic law for a plaintiff or witness to be represented by a *wakil*, an "agent," but that agent need not be formally trained in law. A brother with no legal training can represent a sister, and in fact, suppress the sister's actual testimony.²⁴ Nor was there any punishment for perjury.²⁵ Put differently, there was *no* conception of "a member of the bar" who was a sworn official of a professional body or association.²⁶ There were no independent associations of legal or, for that matter, medical practitioners.

On the other hand, "professional witnesses" (*shâhids*) were used from early times, and in some countries, all the way into the twentieth century. These were individuals selected by the judge and examined for their religious purity (*adl*). Then they were certified to supply and verify information presented to an Islamic court.²⁷ Their testimony was not subjected to cross-questioning. Moreover, if a judge were dismissed or retired, then his professional witnesses were also dismissed, and all disputed cases in which they testified could then be re-litigated.²⁸

²² Richard C. Casplar, editor, *A Collection of Afghan Judicial Decisions*. Photostatic copy, 1976.

²³ *New York Times* April/May 2014.

²⁴ This happened in the case of Salim vs. 'Abd al-Rahmân in Morocco in 14th century; see David Powers, *Law, Society and Culture in the Maghrib 1300-1500* (New York: Cambridge University Press, 2002), chapter 1.

²⁵ Joseph Schacht, *Introduction to Islamic Law*, New York: Clarendon Press, 1964, p. 159.

²⁶ Tyan, "Judicial Organization," p. 257.

²⁷ Jeannette A. Wakin, *Function of Documents in Islamic Law* (Albany: State University of New York Press, 1972). "Certified witnesses" were still used in Afghanistan in the 1970s and in Pakistan today in some courts. The principle is to examine the witness, not the evidence he gives. Cf. Richard C. Casplar, *A Collection of Afghan Judicial Decisions* (mimeo, 1976); and the Afghan Legal Education Program (ALEP) at Stanford University.

²⁸ Christopher Müller, "Judging with God's Law on Earth: Judicial Powers of the Qadi al-Jama'a of Cordoba in the Fifth/Eleventh Century," *Islamic Law and Society* 7, 2 (2002): 159-186.

China

In this short presentation I cannot give more than a brief hint at the differences between Western and Chinese law.²⁹ As noted earlier, Chinese law had no place for formally trained attorneys, and anyone who attempted to enter into the legal deliberations of second or third parties was considered a legal trickster. The conception of a formal trial with defense attorneys, public witnessing, and public announcement of trial verdicts was unknown. As more recent scholarship has shown, Chinese "court opinions" were published privately, not by an official court. They "were not court verdicts themselves but documents justifying the verdicts with reasoned opinions."³⁰ The problem here, as in the Afghan case law mentioned earlier, is that without the intervention of advocates for the defense and a tradition of carefully weighing all the evidence, judges give much higher credence to the views of the police and other public officials; the result is *rule of men*, not the rule of law as established by standard (and contestable) legal procedure. This was why the Europeans developed the *ordo iudiciarius*, legal procedure that became due process.³¹

Just how this lack of standard defense procedures has been carried over to the twenty-first century in China can be seen in the murder trial of Madame Gu, the wife of a high Chinese official, Bo Xilai, who had been dismissed from office.

Bo Xilai was removed as the top official in a major Chinese city (Chongqing), then removed from the Communist Party. The big story, however, was his wife, Madame Gu, who was accused of murdering a British businessman. The trial, which seems to us an exceedingly brief show trial in Stalinist fashion, lasted barely one day. Madame Gu and her co-defendant had their own attorneys replaced by state-appointed officials so that in effect she had no defense. Very little evidence was presented, all of it produced by government officials in secrecy, and none of it could be challenged or debated in court. Moreover, any kind of recording or note-taking was expressly forbidden by court officials. Consequently it is far from clear what was actually said during the trial or how the evidence against Madame Gu was collected. All sorts of questions were left unanswered, but public interest was so strong that officials felt compelled to add more to

²⁹ I have discussed traditional Chinese law in *The Rise of Early Modern Science*, chapter 7. See also the references in note 21.

³⁰ Jiang Yonglin and Wu Yanhong, "Satisfying Both Sentiment and Law. Fairness-Centered Judicial Reasoning as Seen in Late Ming Casebooks," p. 31 in Charlotte Furth, Judith T. Zeitlin and Ping-Chen-Hsiung, editors, *Thinking with Cases. Specialist Knowledge in Chinese Cultural History* (Honolulu: University of Hawai'i Press, 2007).

³¹ Linda Fowler-Magerl, *Ordo iudiciorum vel ordo iudiciarius* (Frankfurt am Main: V. Klostermann, 1984).

the public record by posting their expanded official account of the trial on the Web the day after the event.³²

The whole proceeding was shrouded in mystery while only snippets here and there were revealed to the public. Madame Gu was said to have confessed to everything and was at peace with the official proceedings. She was sentenced to death for murder, but the sentence was commuted to life imprisonment.

In a word, even the wife of a high Chinese official in the twenty-first century had no legal rights in a murder trial that was conducted from beginning to end in secrecy, entirely lacking the kind of formalized due process known to Europe since the twelfth and thirteenth centuries. While some observers might think this was the influence of Communist rule, it is far more plausible to suggest that Madame Gu's trial was merely the extension of the authoritarian quasi-legal procedures that governed China for centuries, all the way back to the Ming Dynasty.

Synthesis

If we return now to our original question about who or what can save us from the present crises of climate change, ecological destruction, terrorism, civil wars and so on, it seems to me that only the institutional and techno-philosophical tools evolved in Western civilization over several centuries are likely to aid us. It might also be noticed that this constellation of institutions is what some political scientists have labeled "modern political institutions," which are the backbone of the democratization process.³³ Unfortunately those observers were unaware of the medieval foundations of these institutions, and hence unaware of the great difficulty of establishing them elsewhere and, above all, unaware of their embeddedness in the unique legal history of the West. At the same time, I have accented the fact that all these civilizational complexes, rooted in the unique legal history of the West, have been absent in the Muslim world, in China, and even in Russia, so that volatility in those places--both economic and political--is a highly likely scenario in the future.³⁴

In any case, it is this institutional apparatus represented by constitutionalism, parliamentary democracy, due process of law, and an open public sphere along with the

³² Andrew Jacobs, "Fast-paced Trial in China Leaves Shadows," *New York Times*, August 9, 2012, p.1; Jeremy Page, "Sentencing in China Trial Stokes Politics," *Wall Street Journal*, August 20, 2012, A6. Several books on this affair have now been published.

³³ Samuel Huntington, *The Third Wave* (1991); and Richard Rose and Doh Chull Shin, "Democratization Backwards: The Problem of Third-Wave Democracies," *British Journal of Political Science* 31 (2001): 331-354.

³⁴ On the very belated development of Russia's legal system, see Harold Berman, "The Rule of Law and the Law-Based State (Rechtsstaat)" with Special Reference to the Soviet Union," pp. 43-60 in *Toward the 'rule of law' in Russia? Political and Legal Reform in the Transition Period*, edited by Donald D. Barry (Armonk, New York: M. E. Sharpe, 1992).

unfettered pursuit of science incubated in Western universities that will enable us to find the solutions to the travails we face.

In this light, it seems to me unlikely that solutions to the global problems mentioned earlier will come from the Middle East, China, Russia,³⁵ or even India. Of course, all of these civilizational areas have large resources of one sort or another, including large human populations, but for different reasons their institutional and educational structures, as well as their *public spheres*, are weak or even non-existent. We can imagine all sorts of wonderful innovations ("billions" of innovations) coming out of the new digital age, as Erik Brynjolfsson and Andrew McAfee do,³⁶ but if the institutional apparatus and the cultural permission to innovate freely is absent, as it is in so many parts of the world, many people will be disappointed.

I do not dismiss the great wealth of human capital that these societies have, but rather expect that in the long run, in the absence of the essential legal and institutional structures of the West, the creative and highly driven individuals in those areas will turn up in the West--not only, but especially in the United States--contributing to scientific, technological and economic innovation here.

Beyond that, those who dismiss the potential leadership of the West, whether that of the United States or the greater European community, have almost totally overlooked the scientific and technological innovations that have been powering the rapid economic growth of the West and the world for the last two centuries or so.³⁷

At the very moment when observers have been declaring the "decline of the West" (or of the United States), we have been witnessing the ICT or *Internet Revolution* that is based on a variety of scientific and technological innovations made entirely in the West, some of them stretching back to the late nineteenth century.

The first of these underlying, and revolutionary, innovations was the invention of the transistor, or microchip that emerged from the Bell Labs in 1947. That path-breaking innovation depended on the new theory of quantum physics of the 1930s that explained how a cascade of electrons could be unleashed in certain solid state materials such as silicon (and others even better) under certain conditions. These advances paved the way for the invention of computers on a chip (computers that did not use vacuum tubes), and hence both high speed computers and *miniaturized* computers could fit on any tiny device

³⁵ On Russia's inability to pursue great innovations to commercial success, see Loren Graham, *Lonely Ideas. Can Russia Compete?* (Cambridge: MIT Press, 2013).

³⁶ Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age, Work, Progress, and Prosperity in a Time of Brilliant Technologies* (New York: W.W Norton, 2014), especially chapter 5, and "Billions of Innovators, Coming Soon" p. 93.

³⁷ For example, among many others, Martin Jacques, *When China Rules the World: the End of the Western World and the Birth of a New Global Order*. New York: Penguin Press, 2009.

such as heat and energy control devices, traffic lights, and ultimately on satellites and cell phones.³⁸

The second major innovation for these purposes was the discovery of *wireless* transmissions. This was a revolutionary discovery of the 1880s in Germany and elsewhere in Europe, leading to the first commercial uses of wireless in radio and telegraphic communication. It was the German scientist Heinrich Hertz, working with the implications of James Maxwell's mathematical equations, who discovered that wireless signals are indeed transmitted by certain electric circuits (1888). Much more had to be done to get a practical application such as Marconi achieved in the 1890s.³⁹ Television followed later.

Third, and now I skip to the creation of the Internet, it needs to be recalled that it was the US government that pioneered the development of this area by funding the DARPA team (the Defense Advanced Research Projects Agency) in the 1960s and 1970s that invented the hardware and software allowing computers to talk to each other, thus making the Internet possible.⁴⁰ This new communication system was then further developed and made available to Everyman by the invention of the World Wide Web protocols created by Tim Berners-Lee in 1990, and which are still with us.⁴¹ The most recent advances in wireless communication and miniaturization of everything are obviously an extension of those earlier scientific and technological breakthroughs along with recent advances in materials science.

So it bears emphasizing that none of these innovations occurred in China, India, or Japan. The latter, Japan, had no computer industry until a frustrated American engineer and entrepreneur took the technology to Japan in the 1980s.⁴² Likewise, Japan was not on the Internet path, primarily because Japan did not use typewriters from the beginning of the twentieth century as Americans and Europeans did, and so it went in a different direction (a more symbolic path), but provided no Internet leadership.⁴³

Now if we were to bring in the many hot, new cutting edge scientific fields of today--the DNA revolution of the 1950s enabling genetic engineering, the revolutions in

³⁸ For background on this see, Samuel Handel, *The Electronic Revolution* (Baltimore: Penguin Books, 1967); T. R. Reid, *The Chip; How Two Americans Invented the Microchip and Launched a Revolution*. (New York: Random House, 1985/2001); Charles Weiner, "How the Transistor Emerged," *IEEE Spectrum* (January) 1973: 24-33.

³⁹ See S. Handel, *The Electronic Revolution* (Baltimore: Penguin Books, 1967).

⁴⁰ Among others, see The Internet Society, "A Brief History of the Internet," online:

<http://www.internetsociety.org/internet/what-internet/history-internet/brief-history-internet>

⁴¹ Tim Berners-Lee, *Weaving the Web. The Original Design and Ultimate Destiny of the World Wide Web* by Its Inventor (San Francisco: Harper, 1999).

⁴² Paul Ceruzzi, *A History of Modern Computing* (Cambridge: MIT Press, 1998).

⁴³ Shigeru Nakayama, "From PC to Internet-- Overcoming the Digital Divide in Japan," *Asian Journal of Social Science*, 30 #2 (2002): 239-247.

biochemistry and microbiology (and each of these brings in highly sophisticated subfields such as immunology, virology and others too numerous to mention), and then nanotechnology (which emerged only in the last twenty years), not forgetting "green technology"-- then we would only begin to grasp the many areas of scientific revolution that have been spawned in the West during just the last thirty to forty years that, again, find their roots in late nineteenth century research, much of it pioneered in Europe, and virtually none outside the West.⁴⁴ The book by Erik Brynjolfsson and Andrew McAfee, above, tells us of even more breathtaking inventions that may have major impacts on social and economic development.

Of course there will be great innovators who will emerge from outside the West, but the impact of their innovations, especially societally and globally, will be almost completely muted unless they emigrate to the West.

In short, all the institutional apparatus that we associate with modern political institutions -- that is, constitutionalism, parliamentary democracy, due process of law, some notion of election by consent, the rise of universities and the unfettered pursuit of science -- are all unique civilizational entities bearing a Western signature, whose innovative vigor is too vibrant to write off. Whether all of this can save us is a question for the future.

⁴⁴ On the singularity of European advances in all the basic sciences (and electrical studies) in the 17th century, see Huff, *Intellectual Curiosity and the Scientific Revolution: A Global Perspective* (Cambridge UP 2011). For sketches on other revolutionary advances see Yasuyuki Motoyama, Richard Appelbaum, and Rachael Parker, "The National Nanotechnology Initiative: Federal Support for Science and Technology, or Hidden Industrial Policy?" *Technology in Society* 13 (2011); 109-118; Kendall Smith, "Medical Immunology: A New Journal for a New Subspecialty," *Medical Immunology* v. 1 (2002): 1-17. According to Smith, "...100 years ago at the beginning of the 20th century it was hoped that it would not only be possible to prevent infections by vaccination, but also to treat them effectively with antibodies. Medical immunology was born." (p. 2).

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