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Malthusian History Not Static

What kinds of things can happen to a Malthusian economy?

Analytic geometry: Describe the economy as two numbers (population, productivity); represent that number-pair as a point; think of changes over time in those numbers as movement over time of the point

Last time we had a constant level of \bar{y} subsistence, and saw two kinds of patterns and processes at work:

- Transitory fluctuations up-and-left and down-and-right around the Malthusian equilibrium (orange): $M.M. Postan's \bar{y}$ respiration.
- Slow rightward drift (green) as technology slowly advances, and population grows at the constant near-subsistence level of productivity and living standards.

But we can think of more:

- Permanent increase (decrease) in required-subsistence: up-and-left (red)
- Permanent increase (decrease) in taste-for-luxuries: up-and-left (blue)
- Permanent increase (decrease) in security and profitability and thus in savings-investment: rightward (black)

And recognize that these three can and do accompany each other, in various combinations:

- Rise of an empire?
- Rise of a commercial network?
- Successful barbarian invasion?
- Religious transformation?

And recognize that these shifts, although permanent, can be undone or reinforced:

The Theory of the Malthusian Economy: Efflorescences & Dark Ages

If this were a different course, we would spend a week or more probably two building an economic model of how a society in Malthusian equilibrium works in terms of trends and fluctuations in population, typical living standards, domination, and \bar{y} lite consumption. This is not that course. So I simply present you with the bottom-line end-point of that model construction process:

The first equation gives the society's Malthusian-equilibrium level of average productivity and living standards on the left-hand side. It is equal to:

1. A parameter \bar{E} , that represents how large a share of production is devoted to \bar{y} luxuries that do not make the population more fit to reproduce itself. For example, if the exploitative \bar{y} lite takes half of production for itself, then $\bar{E}=2$. And if in addition the exploitative \bar{y} lite has a taste for living and making their servants and suppliers live in cities because pre-modern cities are disease-ridden, and so people need better nutrition to survive and reproduce in them \bar{E} , would be marked up even more. And if the civilization has a structure that allows for luxury consumption to trickle down to the commons, that would mark up \bar{E} , as well.
2. The level y^{sub} of consumption of subsistence good needed for the population to stay stable on average.
3. An additional term very close to one, with little impact on the society's level of prosperity creating a wedge between the actual average productivity level and the productivity level at which average population growth is zero. In a Malthusian economy, on average, productivity has to be high enough to generate enough population growth to produce the additional resource scarcity to offset the effects on living standards of better technology.

But (1) and (2) are the big enchiladas here: the wedge between spending on \bar{y} necessities that boost reproductive fitness on the one hand and total production on the other; and the sociological institutions that potentially reduce fertility by delaying marriage or increase mortality through female infanticide or other forms of violence,

The second equation gives the Malthusian-equilibrium level of population. It is:

1. Proportional to the society's resources R .
2. Grows as the society's level of technology H increases over time as a multiple of the subsistence level of necessities consumption y^{sub} of consumption of subsistence good needed for the population to stay stable on average.
3. Grows to the extent that a *pax imperia* and other peace-creating and pro-trade institutions encourage the rate s at which the society saves and invests, relative to the rate \dot{I} at which investments wear out and depreciate.
4. And the importance of factor (3) depends on the salience \hat{I} of investment and capital relative to ideas in generating productivity.
5. Is inversely proportional to our index \check{I} of the share of production devoted to \bar{y} luxuries.
6. There are two small nuisance terms we will ignore.
7. And this whole thing depends on the salience $\hat{E}\hat{L}$ of ideas relative to natural resources in generating productivity.

This second equation is a mindful. Think of it this way: The saliences \hat{I} and $\hat{E}\hat{L}$ give us the balance of importance between ideas, saving and investment, and population growth that produces resource scarcity. The slowly-growing level of technology H imparts an upward drift to population over time. A higher savings rate s boosts and a higher luxuries index \check{I} reduces the equilibrium population. And the society's average level of productivity is boosted by a higher luxury index \check{I} and by sociological institutions that raise the level of necessities consumption y^{sub} required to keep the population reproducing itself.

H grows slowly over time.

s , \check{I} , and y^{sub} shift from place to place and from time to time, and their shifts or, rather, the shifts in the factors that determine them generate the rise and fall, the flourishing and poverty, the efflorescences and the dark ages of pre-modern agrarian-age civilizations.

As Jack Goldstone writes:

Jack Goldstone (2002): *Efflorescences and Economic Growth in World History: Rethinking the "Rise of the West" and the Industrial Revolution* <https://delong.typepad.com/efflorescences_and_economic_growth_in_world_histor.pdf>: Well before the Industrial and French revolutions societies and economies departed from the ideal-typical view of "feudal" economically and technologically stagnant agrarian societies dominated by a predatory elite that wasted all surpluses. Urban networks combined management of urban and rural market-oriented craft production... with flourishing; global trade; and from at least the sixteenth century national rulers brought their unruly agrarian elites to heel by building bureaucratized central ("absolutist") governments that provided a rule of law and framework for the protection and accumulation of private property and capital...

Let me propose... \bar{y} efflorescence as the opposite of \bar{y} crisis a relatively sharp, often unexpected upturn... usually accompanied by political expansion and institution building and cultural synthesis and consolidation.. involv[ing] both Smithian and Schumpeterian growth... often seen by contemporaries or successors as 'golden ages'... often set[ting] new patterns for thought, political organization, and economic life that last for many generations... Golden Age Holland, Mediaval Northwestern Europe, the High Qing; Eighteenth-Century England. Such efflorescences, however, tended to set new institutional and economic frameworks which themselves developed into an equilibrium or inertial state, in which new technological innovations slowed or ceased, and economic and political elites sought to defend existing social patterns. Such inertial states were prone to decay, Malthusian stresses (which were temporarily lifted during efflorescences), and the collapse of complexly interwoven economic and political structures.

An \bar{y} efflorescence is, in our model, a jump-up in \bar{E} , in a society's taste for luxuries, and an increase in s , in savings and investment. We are going to look at two such. Classical Greece, and then Republican and Imperial Rome. (If I were Melissa Dell, I would add the Maya. But I still do not know enough about the Maya.)

Early Iron-Age Greece

Perhaps 300,000 people who called themselves \bar{y} Hellenes in the year -800 became perhaps 4 million in the year -300. And that was only the appetizer. Thereafter, following in the wake of the armies of Alexander the Great, and then the expansion of the Roman Empire to the Danube River, Greeks colonized city after city and spread out into the countryside from the Al-Fayyum oasis in Egypt to the Punjab, and from Alexandria Eschate near modern-day Tashkent to Marseilles in France. Houses got bigger a lot bigger. Trade and the division of labor flourished.

Alongside the extraordinary growth of the Greek population is a remarkable increase in the average age of death among adults. There appears to be much less violence inflicted upon adults either through violence directly applied, or through violence depriving adults of the resources that they need to keep living.

What do I mean by \bar{y} less violence? Consider what Odysseus says in the *Odyssey* about what he and the soldiers he commanded *after* the Trojan War was over, immediately after he and the twelve ships of Ithaka departed the shore:

What of my sailing, then, from Troy?
What of those years of rough adventure, weathered under Zeus?

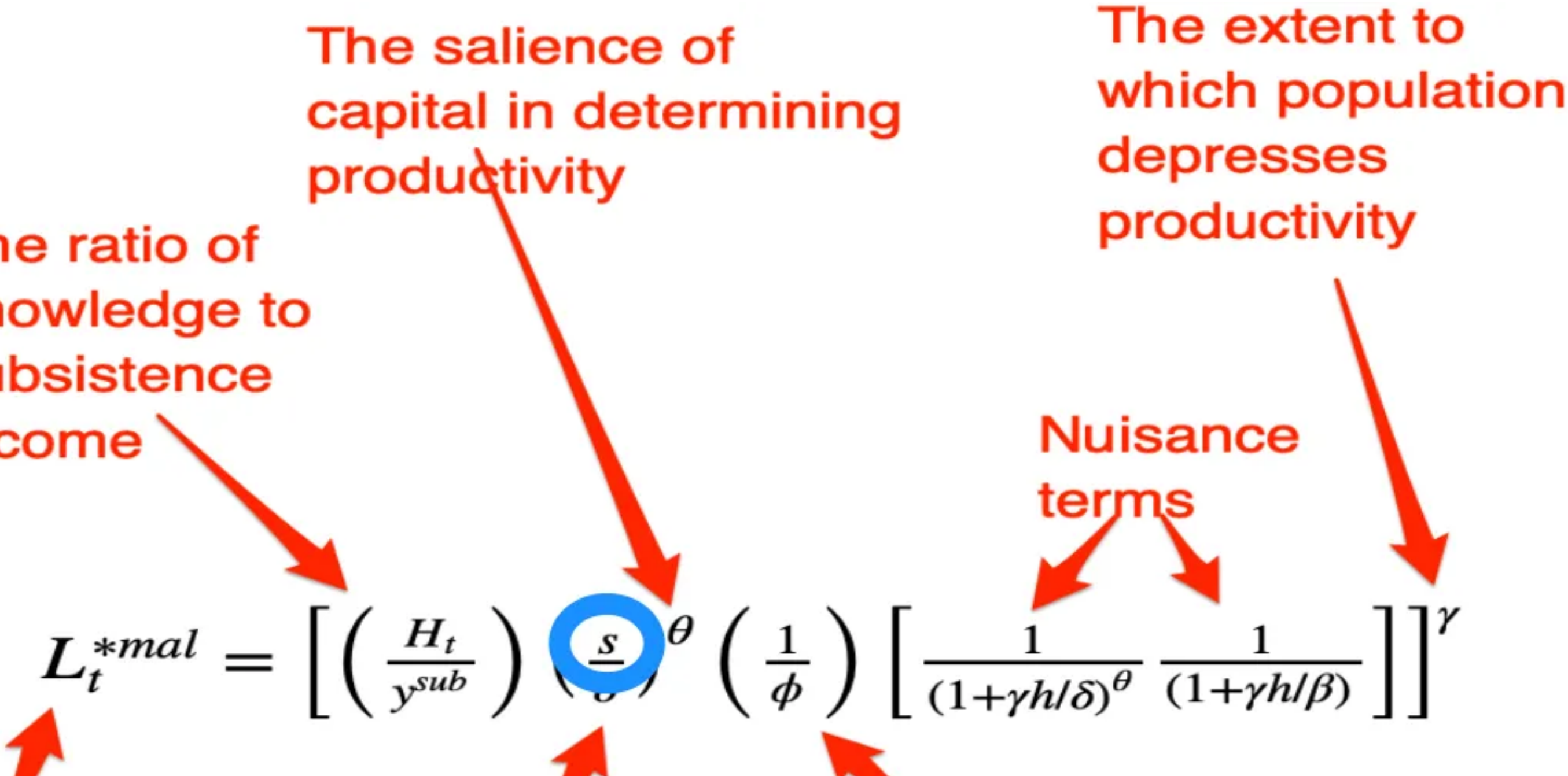
The wind that carried west from Ilion
brought me to Aḡsmaros, on the far shore,
a strongpoint on the coast of the KikonḶs.
I stormed that place and killed the men who fought.
Plunder we took, and we enslaved the women,
to make division, equal shares to allḶ”
but on the spot I told them: Ḷ”Back, and quickly!
Out to sea again!Ḷ”

My men were mutinous,
fools, on stores of wine. Sheep after sheep
they butchered by the surf, and shambling cattle,
feasting,Ḷ”while fugitives went inland, running
to call to arms the main force of KikonḶs.
This was an army, trained to fight on horseback
or, where the ground required, on foot. They came
with dawn over that terrain like the leaves
and blades of spring. So doom appeared to us,
dark word of Zeus for us, our evil days.

My men stood up and made a fight of it
backed on the ships, with lances kept in play,
from bright morning through the blaze of noon
holding our beach, although so far outnumbered;
but when the sun passed toward unyoking time,
then the Akhaians, one by one, gave way.
Six benches were left empty in every ship
that evening when we pulled away from death.

And this new grief we bore with us to sea:
our precious lives we had, but not our friends.
No ship made sail next day until some shipmate
had raised a cry, three times, for each poor ghost
unfleshed by the KikonḶs on that fieldḶ!

At the moment when he says this, Odysseus has just been washed up, a castaway, in the land of the Phaiakia. They ask him how he got there. And the story he tells them is that he is a pirate. It is, moreover, a pirate who keeps pirating. When Odysseus leaves Troy, he has just finished fighting the long and brutal Trojan War. He and his crew have their plunder from Troy. Yet the first thing they do is pirate. Plus they are rather stupid and undisciplined about pirating. In such an environment, is anybody going to save and invest a lot? Or, rather, is anybody going to save and invest in anything other than weapons and weapons training both to (a) make you and yours a hard and difficult target for the pirates, and (b) make yourself more effective when you go pirate? The economyḶ’s ratio of savings to depreciation s/δ is surely going to be low, depressing the population.



The Malthusian equilibrium population

The ratio of savings to depreciation

The inverse of the taste for luxury

The salience of capital in determining productivity

The extent to which population depresses productivity

The ratio of knowledge to subsistence income

Nuisance terms

$$L_t^{*mal} = \left[\left(\frac{H}{y^{sub}} \right) \left(\frac{s}{\delta} \right)^\theta \left(\frac{1}{\phi} \right) \left[\frac{1}{(1+\gamma h/\delta)^\theta} \frac{1}{(1+\gamma h/\beta)} \right] \right]^\gamma$$

Moreover, the risk that, as you mind your own business, Odysseus and company, well-trained, well-equipped, battle-hardened, will come along and, just because they can, "storm that place and killed the men who fought. Plunder we took, and we enslaved the women" such high risks of violent death must, in Malthusian equilibrium, be offset by reduced mortality risk from disease and such. Hence the economy's level of subsistence-necessities consumption will also be high. That also depresses the population.



Not in the model, but potentially very real: A low population density means that ideas that are known and deployed somewhere will have a difficult time diffusing throughout a civilization. A low population density means that the “Smithian” productivity gains from using those ideas to build an extensive and highly productive division of labor will be difficult to attain.

Classical Greece Rising: Institutions

Yet from this Early Iron-Age Dark-Age beginning after the collapse of the high Mycenaean civilization of the Late Bronze Age, the Greek peoples built a civilization.

As Josiah Ober has written, the Greeks moved out of:

the violence and gift-exchange economy that characterized what Finley (1965) famously called “the world of Odysseus”. There was in fact sustained and substantial growth in the Greek economy between the ages of Homer and of Plato and Aristotle; driven by (1) efficient methods of production, predicated on relative advantage and aimed at increasing the quantity as well the quality of goods produced, and (2) by market exchanges based on voluntary contracts. Moreover, the rational Greek state (notably, but not exclusively Athens) was increasingly cognizant “through its legislative, judicial, and administrative functions (ch. 5)” of the social (and taxable) value of providing rules and infrastructure aimed at facilitating the profitable production and exchange of goods. Ancient Greeks, as individuals and collectives, frequently employed economic rationality, i.e. rationally instrumental reasoning in economic contexts.

All-in-all, this appears to be a remarkable civilizational accomplishment, and not one limited to the enrichment of a luxurious predatory upper class. There is a reason that the Greeks have a predominant place in our cultural memory. That reason is not that they are “our” ancestors, whoever “we” happened to be. The people who decided that universities should study the Greeks lived on the island of Britain, in the upper Thames river valley near Oxford and in the fens of Norfolk near Cambridge. They were in nowise descendants, biologically or culturally, of the ancient Greeks. Nobody in England in 1450 could speak or read Greek. Yet the inhabitants of the valley and the fens adopted them as their predecessors in what they decided to call “western civilization”.

Emerging out of the Iron “Dark Age” of -1200 to -800, the Greeks built a unique institutional framework: the city-state. It emerged with functional systems of governance which provided public goods—security, boundary stones, marketplaces, mediators, dispute resolution. This initiated a period of sustained increases in living standards.

Now do not overstate the accomplishment. While Ancient Greece did have a period of democracy, it was relative short (less than 200 years) compared to the duration of the polities. Even during Greece’s Democratic Age, most *poleis* remained oligarchies. And remember! Most citizens “slaves, poor citizens who couldn’t afford their tax bill, women” could not participate even in smallholder democracy. The Greek rules according to which the society was organized tended to be “extractive” at least if you were not one of the *equals* who were full citizens. And the economy was largely based upon slavery. (Do note, however, that with some notable exceptions like the Spartan *helots* and the Athenian and Syracusan mines), this slavery was small-scale rather than plantation slavery: it was ripping somebody out of their social context and placing them in a position in which they had no family or other trusted companions to provide them with any social power.)

At and near its peak, the civilization had astonishing creative achievements. Look at the people of ancient classical civilization. In rhetoric and politics, we have Perikles and Cicero. In generalship, should we have C sar and Alexander. In governance? We have Augustus and Trajan. In philosophy we have Aristotle and Plato. In sculpture and literature we have Praxiteles and Sophokles. They are our equal, even though they knew much less and did not stand on the shoulders of giants.

Even in something like making a good living through mass media via presenting yourself as a celebrity there were equivalents then who are our equals now. Consider Mnesarete of Thespiai. Her name means “Remembrance of Excellence”. But she was called Phryne: toad. Why? Because people thought her skin color, yellow, was like that of a toad. That was thought very very attractive in the Athens of the -300s. Phryne was the favorite model for Aphrodite of the sculptors of her day. And I do not think she would have had anything to learn from Kim Kardashian about how to manage your celebrity. After all, 2000s years after her death people were still writing poems about and marveling at statues of her as Aphrodite.

The ancients were “at least those who were not protein-deprived *in utero* from malnutrition” our equals in intelligence, cultural sophistication, mechanical ingenuity, intellectual creativity, and, in short, in the ability to think and do.

Hellenistic-Era Technology: The Anti-Kythera Mechanism

Let me pick one example of Greek accomplishment that is at least adjacent to the process of technological innovation and development that has driven our civilization to its high prosperity. Let me talk about the Anti-Kythera Mechanism.

Found in a shipwreck offshore of the southern tip of the Peloponnesian peninsula, the Anti-Kythera Mechanism was built between -150 and -70, probably by artisans and scientists on the island of Rhodes. As reconstructed, its outer shell was a 13” x 7” x 4” wooden box Inside were gears “with the largest of them 5” in diameter. It looks as though there were 37 gear wheels in all.

It was a mechanical computer, a clock calendar, astronomical observation and modeling device. By turning a crank on the side, you turned the interlinked gears to make pointers on the outside of the box tell you the location of astronomical objects on any particular day. A user of the Anti-Kythera Mechanism could thus follow the movements of the Moon and the Sun through the zodiac. He “almost surely a “he” could predict when it was likely that there might be eclipses. The box even modeled the irregular orbit of the Moon, for the Moon’s orbit is not a circle but an ellipse, and so its velocity as it revolves around the earth is greater when the moon is near its perigee than when it is near its apogee. (That motion had been studied in the late -100s by the astronomer Hipparkhos of Rhodes; a natural speculation is that he may have been involved in the mechanism’s construction.) It includes, in concrete mechanical gear-driven form, the most advanced astronomy known to the Greeks.

The technological competence to make such a mechanism was lost. The astronomical knowledge was lost in the Latin Western Mediterranean, but preserved in the Greek Eastern Mediterranean and eagerly sought by the Muslim Middle-East, where the transfer of a copy of Claudius Ptolemy’s *Almagest* to Baghdad was demanded by the Kalifa Al-Ma mun before he would sign a peace treaty with the Byzantine Empire. What they made was less complex, however: mechanisms of similar complexity would not be seen again until the mechanical astronomical clocks made in Western Europe more than a thousand years later, in the 1300s. Ancient civilization was capable of making devices of extraordinary complexity and precision.

When it was shipwrecked, the Anti-Kythera Mechanism was being carried from somewhere in the Aegean Sea region to somewhere in Italy. Was it booty that Roman commanders were carrying home after a successful conquest or raid? Was it commissioned by some wealthy Roman worthy to put on display in his house? Was it going to be an educational tool that a Greek philosopher or slave-tutor would use for demonstrations or lessons? We do not know.

Marcus Tullius Cicero wrote, in his *De Re Publica*, about the wonders of modern science and the ability to build “*sphera*” is what he calls them. Which means “sphere”, as you’d expect it to do. But it clearly has a special technical meaning here: a model to show the movements of the stars and the planets, the Moon, the Sun. We don’t know exactly what Cicero was talking about:

C. Sulpicius Gallus “by chance in the house of [his one-time co-consul] M. Marcellus [saw] a *sphera* which the ancestor of M. Marcellus had taken from the conquered Syracusans out of their wealthy and embellished city; the only thing he had possessed himself of among so great a spoil which Arkhimedes also had made. When Gallus began very scientifically to explain the nature of the mechanism; the Sicilian [Arkhimedes] appeared to me to possess more genius, than human nature would seem to be capable of. The motions of the sun, moon, and those five stars which are called wandering. Arkhimedes had discovered a method of producing the unequal and various courses, with their dissimilar velocities. The moon was made to succeed the sun by as many revolutions of the brass circle, as it actually took days to do in the heavens.”

Was this a similar mechanism? Probably.

We do know he ascribed the *sphera* to Archimedes. We do know that the Roman aristocrats who had these things were interested in collecting them as booty and bringing them back as wonders to display after successful wars “much more interested than in say, founding universities or endowing departments of astronomy and astronomical knowledge.

The only kingdom who seriously did do that was the Ptolemaic Dynasty of Egypt that established, maintained and supported the Library of Alexandria. The Roman emperors as they succeeded the Ptolemies continued the practice. But that was it.

Military research and development? Yes. Staff architects for the waterworks? Yes. More general natural philosophers? No. They accomplished they accomplished great things. They could have accomplished greater things. And yet they did not.

Prosperity & Human Flourishing?

We have seen how the coming of institutions that turned the Aegean Sea basin from an arena for the bloody struggles or piratical thugs into one in which humans could build a, well, civilization could boost population and population density in the Greek “efflorescence”. We have gestured at how such an efflorescence could also boost the level of ideas each deployed in the Aegean Sea basin economy: ideas could be more easily and more completely transmitted with denser populations and more trade, and ideas that required a larger scale of production and hence a finer division of labor could be deployed and diffused much better in the much denser, much more trade intensive economy of the classical age. But the evidence suggests not just that the Greek efflorescence brought with it a higher population, but also much greater production per capita and per worker. How would that come about?

In the model of the Malthusian economy, the level of worker productivity and income per capita depends primarily on two factors: a society’s level of true subsistence-necessities consumption, and its taste for luxuries broadly defined. (It also depends positively on the rate of ideas growth and on the salience of ideas vs. resources in generating labor efficiency, and negatively on the sensitivity of population to prosperity, but those are quantitatively unimportant.) What can you say about those factors as the Greek Aegean Sea basin moved from its early iron dark age into its classical efflorescence?

Less random death from pirate raids, and the replacement of wars conducted by raids and looting that devastated noncombatant populations by a different kind of war, one in which hoplites in phalanxes confronted each other in large-scale pitched battles decided by the push of spear “these things would tend to lower true subsistence-necessities consumption, and so reduce visible indicia of prosperity, however good they may have been for non-combatant populations left alive, unenslaved, and unraped. Working on the other side, as a positive effect on equilibrium productivity levels (although a sharp negative on societal well-being), Classical Greek society appears to have been more hierarchical, and more patriarchal, which means the growth of female infanticide: bluntly, killing the babies of slaves, and killing non-slave babies when you already had too many girls in the household, or if the male babies looked sickly.

Then there is the taste for luxuries. A desire to live in cities? Check. An increasing degree of social hierarchy leading to a high-consumption leisured upper class? Check. Growing availability of luxuries to tempt the upper class into buying objects and experiences rather than maintaining hangers-on as muscle? Check. Trade and openness that allowed the middle class to spend on things other than those that enhanced Darwinian reproduction fitness as well? Check.

That's it seems entirely understandable that the Greek efflorescence saw increases in both population density and in at least average standards of material comfort and labor productivity.

Whether the Aegean sea basin in -350 was a better place for humans than the Aegean sea basin in -950 is a more difficult problem. I am not confident that I have an answer, or even a view.

The Roman Empire

Classical Greece was very impressive culturally. The civilization of Macedon that was its successor, that was the axis of the so-called Hellenistic Age in the Eastern Mediterranean and the Middle Eastâ€”with â€œMiddle Eastâ€”extending to the Punjab and to the shadows of the Tien Shan Mountainsâ€”was very impressive culturally and militarily: Alexander the Great conquered, and his successors, the so-called Diodakhi, continued to conquer. But it was not impressive politically: Alexanderâ€™s empire immediately fell apart at his death.

Republican and then Imperial Rome were impressive culturally, militarily, and politically. The Romans not only spread their culture, they conquered. They not only conquered, they turned the inhabitants of their empire into *Romans*. And it echoed down the millennium. The last man to claim to be Roman Emperorâ€”â€œCÃ¡sar of Romeâ€”the Ottoman-Dynasty ruler of Turkey and its empire, abdicated his throne only in 1922. The last man to claim to be CÃ¡sar was King George VI of the United Kingdom, in his role as Kaiser-i-Hind, Emperor of India. He renounced that title only in 1947.

Before -340 Rome was nothing special. In -390 Rome had been sacked by the Senones band of Gauls. In the -340s it was one of the city-states of the Latin-speaking region that was the plain of Latium, duking it out with the others. It was the largest, but that just meant that the others were usually allied together as the Latin League to constrain and contain it. Sometimesâ€”when there were external enemies in the forms of Gauls or Etruscansâ€”they allied and fought together. Most of the time they fought against each other. City-state war and peace business as usual.

Before the coming of the Roman empire, in the Mediterranean basin and also in elsewhere, the rule was that you did not get huge, durable states and empires. The rule was that empires were based on one or two city-states, their ruling families, and the military power they could projectâ€”primarily by overawing their neighbors and getting their neighbors to join in their armies. If you were a city-state close by to Ashur or Nineveh, knuckling under to the Assyrians was a very good idea, until the Assyrians showed weakness. Therefore empires were not that large, and relatively evanescent. (This with the exception of ancient Egypt, where the countryâ€™s being just one long line of stuff along the Nile greatly limited opportunities to revolt and greatly aided the projection of power, as long as you could hold the Nile Delta against attackers from the north). And in Greece you did not get empires, save for the extremely short-lived Athenian and perhaps the earlier Minoan thalassocracies, until Alexander the Great. And his empire and those of his successors were evanescent as well.

Egypt aside, the only thing that came even moderately close to approaching the same league as the Roman Empire was the Haxamanishya (â€œAkhaïmenidâ€”) Persian Empire, which did stretch from the Aral Sea to the Nile Cataracts and from the Indus River to Thrace, but which lasted for only two centuries, not eight. How the Haxamanishya Dynasty and the Persian aristocracy managed to do it is not clear to me. My guess is that it was because they came from the horse-pastures of Iran and were near to the heavily populated well-irrigated agricultural districts of Mesopotamia. The horse pastures meant that you had warrior-aristocrats and their followers who were trained to ride horses nearly from birthâ€”and to shoot arrows from them. The maxim was that a Persian aristocratic male was taught three and only three things: to ride horses, to shoot arrows and to always tell the truth. And if you ride horses and shoot arrows nearly from birth, you get very good at doing so.

The immediate conquest of Mesopotamia gave this Haxamanishya Persian Empire tax revenue and resources to support an empire. The horse-pastures gave them an extraordinarily deadly military strike force: one that could move faster than their potential adversaries, kill anything they could come within arrow -each of, and evade anything that might have a momentary battlefield advantage. So you spread out until you reach the jungles of India where the arrows canâ€™t fly long distances, the deserts where the horses cannot find fodder, or the excessively rough country of Greece and inner Anatolia. And previously unseen rapid communications hold the thing together. But they do so for only two centuries.

The Persian Empire is then conquered by Alexander the Great. But his potential successors could not hold it together.

Sources of Roman Imperial Scope:

The rise of Rome from just another Greek-culture periphery city-state and associated tribal grouping to Eurasia-straddling empire was due to four major factors:

- **militarism** on the part of Ã©lites who needed victories in war to attain office and hence rise in status,
- an unparalleled ability to **mobilize** the non-Ã©lite citizens for war,
- sufficient sharing of the benefits of conquestâ€”in plunder, slaves, and landâ€”to generate a popular **mandate** to continue the policy of conquest, and then
- **mass** via the incorporation of the conquered of two generations ago into this generationâ€™s Romans, and thus beneficiaries of conquest, to give Rome vastly greater strength than any other Mediterranean-are polity.

These four all generated **mammoth** military, and then political and economic, expansions of the territory ruled by Rome after about the year -340.

The Romans rule the Mediterranean basin starting around -180 for 800 years. And the Romans do what no earlier empire had managed to do: *they change the language* of the people they rule. By the end of the Roman Empire, the west of it speaks Latin, and the east of it speaks Greek. The civilization and culture has been imposed on the peoples of the empire in a way not previously seen. Now there were equals of the Roman Empire in the Agrarian Ageâ€”the Han (although they only lasted for 400 years), and the Islamic Kalifate. But there was nothing larger and more durable.

The natural questions are: How did they do it? And what did doing it mean for the people of the empire?

It took a while. Go back to -500, the time of the first treaty between Rome and Carthage, Rome marked out Latium as its sphere of influence but not controlâ€”a Monroe Doctrine, of sorts. The 400s seem to have seen a five-sided conflict over the plains of Latium between Etrusci to the northwest Aequi to the northeast, Volsci to the southwest, Latins (usually allied with Romans according to the terms of the Foedus Cassianum of 493 BC in the middle), and Romans. The Gauls appeared at the end of the century: they sacked Rome in 390, and threatened it again in 360.

By 350 BC the Etrusci, Aequi, and Vosci were no longer an existential security threat. Rome had conquered and annexed the southernmost Etruscan city of Veii in 396; it had annexed Antium, the principal town of the Volsci, in 377; and the Aequi disappear from the sources between 388 and 304.

Nevertheless, as of 350 BC, the second treaty with the Carthaginians indicates that Rome was still marking Latium as its sphere of influence, but nothing beyond, and Rome was not claiming control of Latiumâ€”only a sphere of influence, with a requirement that Carthage hand over any Latium town it had conquered and sacked. But it was still priority, and not paramountcy, in Latium as of 350 BC, and no claims of any sphere of influence beyond.

Then in a short three-year war, Rome fought, defeated, and conquered its allies in the Latin League. And its policy of â€œincorporationâ€”began.

Incorporation

I stress incorporation. There was no way you could become a Persian aristocratâ€”you were a conquered servant, or slave. There was no way you could become an Assyrian. There was no way you could become an Athenian, or a Spartan: you had to be born one. But you could become a Roman.

Go back to -340. Rome has finally won what it wants to be its final, decisive victory over the Latin League, and the other citizens of Latium. And so it decides to change the game of city-state politics. It takes Romans, and plants them in the territories of the other city-states, as colonies. And the colonists remain Romans. It takes some of the other city-states, and makes them Romansâ€”all of the Latin League save Tibur and Praeneste, which were retained as Latin allies bound by bilateral treaties, gained the status *civitas sine suffragio*, citizenship without the vote in Roman popular assemblies. And still others conquered cities become allies, bound to Rome by bilateral treaties, obligated to assist Rome in war and privileged to share in the plunder. If the conquest and annexation of Veii early in the -300s had doubled the Roman population base, the transformation of Latins into Romans more than doubled it yet again.

The polity remains â€œRomeâ€”, and decisions are made in the city. But the number of people who regard themselves as Romans (and their allies) who can be mobilized for war now encompass everyone living in the plain of Latium.

Militarism: members of the Ã©lite competing for authority and status know that they have to have been a successful generals for the people of Rome to vote to elect them to an office. And, in Rome, being elected a magistrate is the point of the game. Alongside militarism comes **mobilization**: getting everyone to show up for battle, with cheaper weapons and with state support for the army, rather than having the army limited to those who could afford to and then be bothered to spend the money buying the weapons needed to stand in the battle lines. And Roman citizens were eager to be mobilized, gave a **mandate** to the Ã©lite for conquest. Why? Because the Roman Republic also created institutions that shared the benefits of conquest widely. Members of a successful army would get plunder, and could, if they wished, get new large farms for themselves carved out of the territory of the Etruscans or the Campanians or the Samnites or whoever was the enemy-of-the-year. And the **mass** of Romans grew. You might be a conquered slave. But your grandson would have been freed, become a client of the family of their ex-master, and been Roman citizens. Their grandson might be a centurion, and his son might become a senator. And his grandson might become an emperor.

Looking at the emperors of Rome, the first two dynastiesâ€”the first of Augustus, Tiberius, Caligula, Claudius, Nero (-27 to 68); and then the second of Vespasian, Titus, and Domitian (69 to 96)â€”were all Roman aristocrats. The first emperor of the next dynasty (96 to 192), Nerva, is a Roman aristocrat too. Nerva, however, finds himself in political trouble: his predecessor Domitian had been assassinated, after all. So what does Nerva do? He goes down from his palace on the Palatine Hillâ€”the word â€œpalaceâ€”is a shortened version of the hillâ€™s nameâ€”to the Roman Forum in the valley below, walks up to the speakerâ€™s podium on the slope of the neighboring Capitoline Hill, and cries out: â€œMay good fortune favor the Roman people and the Senate and myself! I hereby adopt as my son Marcus Ulpius Traianus!â€”

Trajan was a Spaniard. Trajan was commander of the largest army in the Roman Empireâ€”the army of Upper Germany. Trajan was the most respected general and administrator. By adopting him as his son and heir, Nerva had just given Trajan the religious duty to avenge anything bad that might happen to Nerva. He had named as his successor to the Emperorship a man who controlled the force to make it stick. Later, as Trajan aged, he adopted his similarly Spanish younger cousin Hadrian as his successor. And the founder of the subsequent, fourth dynasty (193 to 235) of Roman emperors was a Libyan: Septimius Severus.

You could join the Romans, and become Roman yourself. That, plus its other institutions, was what gave Rome extraordinary geographic reach and extraordinary temporal duration. What were those other institutions?

Well, it's a republic. So you have magistrates, who are in the business of being famous of becoming famous by successful conquest, but then who have to give place to others. So the idea that holding on to the position, you have, um, is always less than we need to find someone else to conquer so we can make our reputation.

You have a constitution that provides for extraordinary amounts of political negotiation, at the things that preserve the mandate, which allows for the mobilization of the city behind militarist expansion, also enabled by the mass incorporation of Concord communities.

Flexibility

You have an incredible willingness to be flexible with your institutions and your technologies that we need a road from Rome to Capua so we can get legions there quickly if the Samnites attack. Our cities need a better water supply, so we will build aqueducts like no one's ever seen.

Then, all of a sudden we're facing not the Latins, but instead the Greeks, who all fight with spears and are close together like a hedgehog. A Greek phalanx properly trained and holding together can destroy any looser array. So we going to learn to fight with spears in the phalanx. But we're also going to keep our light-armed troops for when we hit for the Etruscans, or the Samnites. The Samnites have superior ways of organizing the troops to fight in hills, we're going to adopt their system as well. We need to have long term service soldiers, because campaigns now last longer than just one summer, because we now have an empire. Well, we're going to turn our army professional. And then we need the imperial legions, in which we turn the army into professionals.

As of the year 150 the workings of the factors captured in this model certainly led to a very impressive â€œefflorescenceâ€”throughout the territory of the Pax Romana, of the peace of the Roman Empire. The empire and its culture had an enormous taste for â€œluxuriesâ€”including middle-class conveniences, the presence of a leisured upper class, and a taste for urban life, all with effects on human flourishing both positive and negative, depending on where you happen to be in the empireâ€™s strongly hierarchical social pyramid, and on what you take the appropriate scale of values to be. The boost of this factor to the Roman economyâ€™s average productivity were partiallv, but only very partially offset, by the fact that the risks of violent death within the bounds of the Pax Romana were relatively low, as long as you were not one of the slaves confined to the mines or to the worst of the plantations, and hence that the required

level of necessities consumption was low because even the malnourished had a higher chance of being able to live their lives and reproduce.

On the side of population density, of people per unit of resources, a higher taste for â€œluxuriesâ€ reduces population density. The resources to make those luxuries are not used to support making people stronger and healthier and more likely to survive and reproduce. But that factor is overwhelmed by how the Pax Romana allows people to build: to invest in infrastructure, in tools, in land improvements, in sophisticated enterprises, all of which greatly raise the support given to human labor by non-human tools as the capital-intensity of the economy receives a great boost. Plus a dense civilization will be likely to push its level of ideas H deployed and diffused throughout the economy to whatever the then-current state of human knowledge was. A thin population in a time in which long-distance trade is difficult and costly requires that people be jacksâ€(and jills)-of-all-trades rather than masters of one. And useful ideas that have been discovered and developed have a very hard time being deployed and diffused.

Roman dominance lasts for 800 years in the Mediterranean basin, right from -150 on up to 650 or so. And even after 650 the Roman Empire hangs on in Turkey and the Balkans for an additional five centuries. In 1204, the Late-Roman Byzantine Empire is conquered by treachery from by Western European crusaders who are supposed to come help them fight the Muslims and instead betray them. The Byzantines recover their empire 50 years later, but it's never the same.

Yet there is a guy calling himself Roman Emperor in 1453 in the city of Constantinople when Mehmet II Osmanli conquers it for the Ottoman Empireâ€and the Ottoman Sultan then takes on the title of Roman Emperor himself.

The High Empire

Note the while the economic state of the Roman Empire was exceptional for Agrarian-Age history, it was not isolated. Moving northeast from the Roman Empire you come to barbarian kingdoms on its borders which are furiously learning from Rome in developing civilizational complexity, royal authority, more sophisticated divisions of labor, and better equipped and disciplined military castes. Moving east from the Roman Empire you come to the Parthian Empire, successor in the traditions of the ancient Near East of Mesopotamia and the Iranian Plateau, itself a high civilization that would have received much more attention from historians had it not existed in the shade of the Roman Empire. Moving northeast we come to the caravan-route civilizations of the Silk Road in Central Asia. Moving east from Parthia we come to the Kushans and the ĀĀtavĀhanas in the subcontinent of India. And on the far side of the Himalayas the Han Dynasty (-202 to 220) had unified the Chinese-speaking culture area in a single state from Vietnam to Korea, and has reached out to establish its suzerainty over the Protectorate of the Western Regions beyond Yumen Pass in the Tarim Basin, with the Protector holding court at the garrison of Wulei.

The peoples of the empire understood that they were living in a remarkable timeâ€that the Roman Empire at its height was something that had not been seen before. I already noted the professional thought leader of the day ĀĦlius Aristides, and the oration he gave in front of the Emperor Antoninus Pius, in which he claimed that â€œall meet here [in the city of Rome]â€all the arts and crafts that are or ever have been, all the things that are engendered or or grow from the earthâ€Thus: â€œit is not easy to which is greater, the superiority of this city in respect to the cities that now are, or the superiority of this city respect to the empires that ever wereâ€

Antoninus Pius was the fourth of the Five Good Emperors of the six-emperor Antonine Dynasty: Roman aristocrat senator Nerva, his adopted son Trajan, Trajanâ€™s adopted son (who was his younger cousin) Hadrian, Hadrianâ€™s adopted son (who had married Hadrianâ€™s niece) Antoninus Pius, Antoninus Piusâ€™s adopted son (who was Hadrianâ€™s great-nephew) Marcus Aurelius, but then Marcus Aurelius had a son who survived, Commodus, who inherited the throne, and is played by Joaquin Phoenix in the highly potboiler-ish movie *Gladiator*. And it is conventional to take the reign of Commodus as the time when it all came crashing down.

But that is not correct.

Decline (but Fall Takes a Very Long Time Indeed)

In the middle of the -150 to 650 story of Roman Mediterranean dominance is this rather awkward political transition from Republic to Empire from -50 to -20. But the end of the Roman Republic in the -50s is not the decline of Rome. The civilizational rise continues for another two centuries, until the Antonine Plague arrives in 165 during the reign of Commodusâ€™s father, Marcus Aurelius.

Historians of previous centuries saw nothing wrong with attributing the collapses of civilizations and the dark ages that followed to the coming and rule of a bad king. And they showed no hesitation in judging the worth of monarchs. We step back and, looking at the first three dynasties of Roman emperors, cannot help but notice that when we rank emperors by their goodness as recorded by our historical sources, we get roughly this list:

Augustus,
Trajan,
Marcus Aurelius,
Hadrian,
Vespasian,
Titus,
Antoninus Pius,
Nerva,
Tiberius,
Claudius,
Domitian,
Commodus,
Caligula,
Nero.

Who comes at the end of this list? The four emperors, starting with Domitian, who were assassinatedâ€and whose successors desperately wanted to blacken their memory in order to justify the assassination or their benefiting from it. Why does Claudius come at the end of the list of emperors who died in their beds? Because his adopted son Nero killed his co-emperor, Claudiusâ€™s biological son Britannicus, and so wanted Claudius portrayed not as an evil tyrant but as an incompetent fool whose biological family was unworthy of rule. Similarly, Caligula wanted to mark that he was making a clean break from Tiberius.

The other emperors who come earlier in the list? All followed by their designated successors, who wanted to use the weight of history to reinforce their rule.

What are the chances that the worst emperors were just those four where the assassins succeededâ€because there are always people whom the emperor has injured, who are potential assassins?

Food for thought.

Weâ€especially Willem Jongmanâ€trace the decline and fall of the Roman Empire to the consequences of the three great plagues that hit the Roman Empire after the year 165: the Antonine Plague of 165-180, the Plague of St. Cyprian of 249-262, and the Plague of Justinian of 541-549. Each of them took down about a quarter of the population of the Roman Empire.

What happens when an Ālite control a society, but all of a suddenâ€because of a sharp population declineâ€the amount of potential surplus the Ālite can extract from the population drops, and the stakes involved in controlling and extracting surplus from any individual worker rise because individual workers are scarcer and more valuable? In Britain after the Black Death of 1346-8, the Ālite tied to tighten the screws: impose price and wage controls to keep workers from utilizing their bargaining power, reinforcing restrictions on mobility, and hoping to increase the amount extracted from each peasant and craftsman in order to keep their revenues up in spite of the reduced population. It did not work: the institutions the Norman and then Plantagenet kings had put in place to maximize their power against the barons eliminated the medium-scale territorial lordships that would have been needed to make a fugitive peasant-return policy work. In Eastern Europe after 1346-8 as well, serfdom died away, as lords desperate for people to work the land offered attractive terms to in-migrants. Two-hundred years later in Eastern Europe, however, there was another upward leap in the value of peasant work, as the Vistula watershed and places further east became suppliers of grain to rapidly growing Western Europe and to the growing Volga watershed power of Muscovy. And that time the ruling Ālite enforced serfdom, and made it stick.

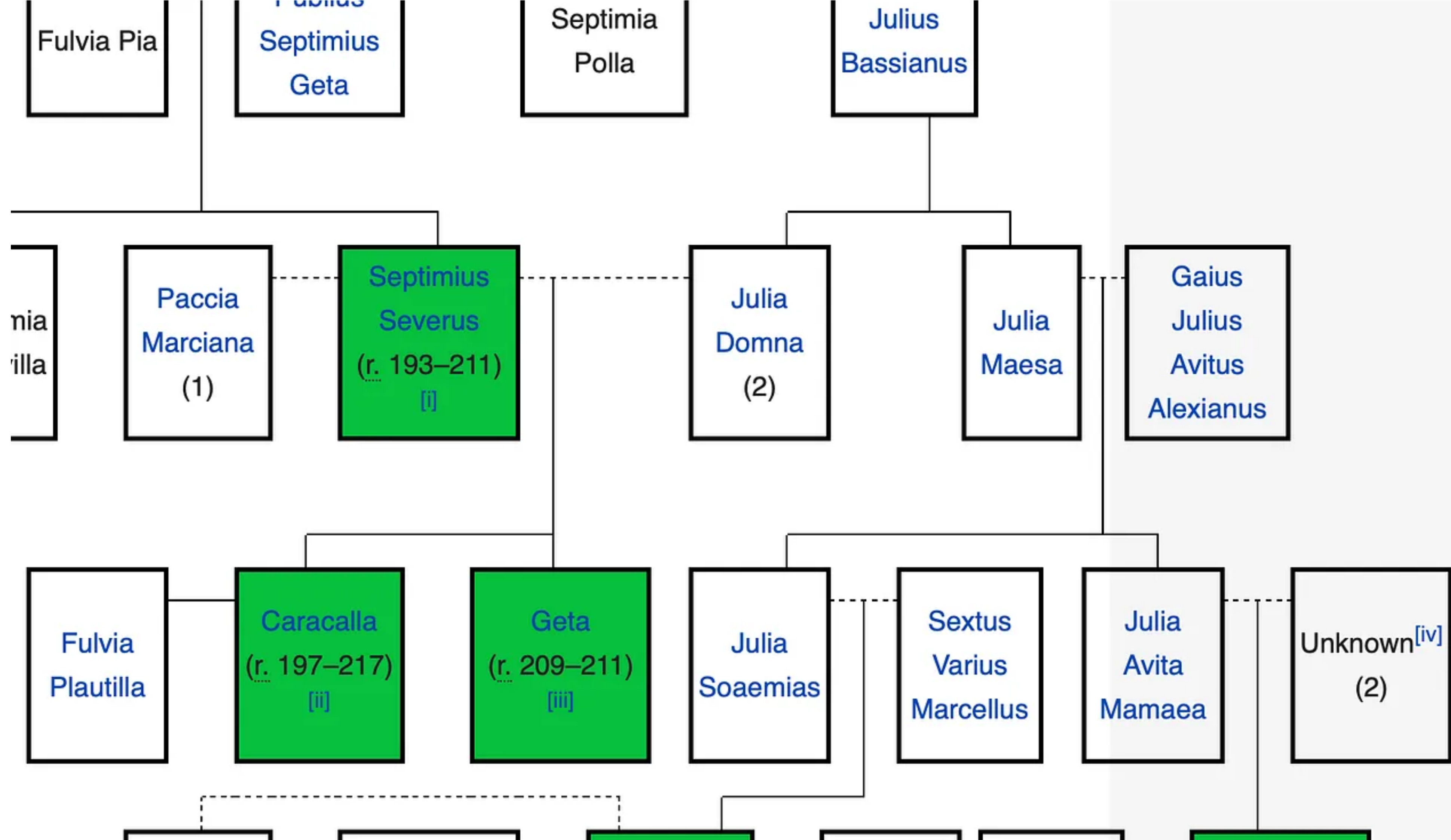
The debates over why it went one way some of the time and the other way the rest of the time are interminable, and inconclusive. I would claim that we really do not know. My view is that it mostly depends mostly on whether the Ālite is able to organize itself, or is split and so incapable of successful collective action. And it depends somewhat on statesmanshipâ€are there powerful people who have the long-term health and prosperity of the polity in their minds, rather than just their personal or family advantage?

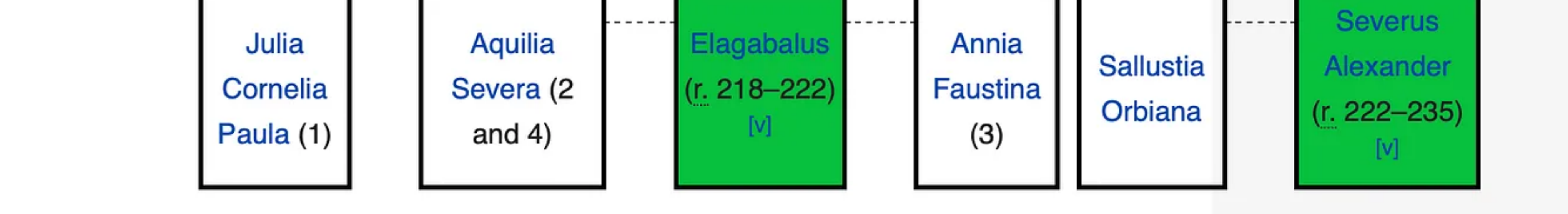
The Antonine Plague of 165-180 was followed by a clamping-down on opportunity and mobility, and a tightening of the exploitative screws. Instead of Roman citizens being a substantial (and growing) class with legal due process rights and access to grain and land, a new set of distinctions begin to emerge: the distinctions between the between *honestiores* of high status and *humiliores* of low status and with next to no due-process or substantive rights began to emerge. As early as 200, formerly free farmers were attaching themselves to local landlordsâ€and not in a normal-for-Rome client-patron relationship, but in one of serflike subservience, trading resources for protection against roving bandits and also against the stateâ€™s tax-collecting functionaries. Emperors found themselves able to do less, as the smaller population had to support the same administrative, upper class, and military infrastructure.

There is a shift toward military power as a decisive factor within the empire. â€œBe in harmony with each other, enrich the soldiers, scorn everybody elseâ€ was what Emperor Septimius Severus (145 - 211, Emperor from 193) told his sons Caracalla and Geta on his deathbed. And there seems to be increased chaos in high politics, as shown in the relative reign lengths of the Antonine and Severan dynastiesâ€they get a lot shorter in the Severans, and there is one successful non-family usurper in the middle, Macrinus:

- Nerva 96-98 â€œAntonineâ€
- Trajan 98-117
- Hadrian 117-138
- Antoninus Pius 138-161
- Marcus Aurelius 161-180
- Commodus 180-192
- Pertinax 193
- Didius Julianus 193
- Septimus Severus 193-211 â€œSeveranâ€
- Caracalla 211-217
- Macrinus 217-218 (usurper)
- Elegabalus 218-222
- Severus Alexander 222-235







Septimius Severus died in February 211. By December, Caracalla and the Prætorians had murdered Caracalla’s brother Geta to clear the field. Caracalla reigned until 217, when he was assassinated by a disgruntled soldier. An attempt by non-senatorial-class Prætorian Prefect Macrinus to seize the throne was defeated by Caracalla’s aunt Julia Mærsa, who installed her grandson Elagabalus and then, as a within-family fight turned deadly, her other grandson Severus Alexander. Severus Alexander ruled until 235, when he was assassinated by mutinous soldiers of the Legion XXI Primigenia in Mainz.

So what happened to produce the collapse of law and order, and the destruction of the social mechanisms of hierarchy and control that enabled a great taste for and that fueled a strong desire for luxuries, and indeed for comforts as well? â€œComfortsâ€ here means something as simple as a legionary being able to have a well-made bowl from Italy, even if he were stationed at Hadrian's Wall on the southern border of Scotland.

How does the late Roman Empire differ from the Roman Empire in days of expansion? Well, **militarism** is different, for one thing. In striking contrast to earlier days, a successful general, a competent general, is a threat to the Emperor: not to be encouraged. **Mobilization**â€in order to extract more resources from a smaller population, the people must be disarmed rather than mobilized. **Distribution**â€the smaller pool of benefits because the plague has reduced the population needs to be hoarded for those with connections not shared. **Incorporation**â€well, you can no longer join the Roman upper class, but you can decide to join the barbarians to join the Goths.

Perhaps a major institutional error was committed by Septimius Severus. He enforced a separation between the rich senatorial class and those given command of legions. His idea was the only somebody who had both loyal legions and a large social-bureaucratic network within Rome could be a credible rebel and threat to him and his dynasty. Hence, a senator in command of an army. Arrange things so that one group of people, the senators, were wealthy and had the network of social and bureaucratic connections in Rome; and another, separate group had command of legions and armies and hence the opportunity to gain the loyalty of legions, and he and his dynasty would be safe.

That turned out not to be true. As Tacitus had written about the year of the four emperors following the death of Nero, it was then that the secret of the empire got out: legions, not the senate, made the emperor. But a frontier army-made emperor would then lack the bureaucratic and social connections in Rome to stabilize his rule. This meant not only that the emperors would be weak, but also that all of the other commanders of the other frontier armies would note how weak the emperor was, and think that they should make a play for the throne as wellâ€if only because the emperor would know that he was weak, and that the other generals were thinking, and perhaps decide that he should strike first to deprive them of their commands and their lives.

After the murder of Severus Alexander (and his mother!) in a military mutiny, things get rougherâ€internal coups, and for the first time in more than 200 years Roman armies lose some important battles. Things come close to falling apart in the middle of the 200s. We can see this in the length of the reigns of the emperors after Severus Alexander and before Diocletian:

Severus Alexander 222-235
Maximinus Thrax 235-238
Gordian I 238
Gordian II 238
Pupienus 238
Balbinus 238
Gordian III 238-244
Philip the Arab 244-249
Philip the Younger 247-249
Decius 249-251
Herennius Etruscus 251
Trebonius Gallus 251-253
Hostillian 251
Voluianus 251-253
Aemilianus 253
Silbannacus 253
Valerian 253-260
Galienus 253-268
Claudius Gothicus 268-270
Quintillus 270
Aurelian 270-275
Tacitus 275-276
Florianus 276
Probus 276-282
Carus 282-283
Carinus 283-285
Diocletian 284-305

The 50 years from the death of Severus Alexander to 284 then saw 27 different emperors, at least as many other rebellious claimants, more-than-annual civil wars, the temporary split of the empire into three, ruled from Cologne in Germany, Rome, and Palmyra in Syria. The 249-262 Plague of St. Cyprian killed off perhaps a third of the population again. A new Persian Empire, the Sassanians, had destroyed a Roman army at Mesene in 231 even before the end of the Severan dynasty. The Persians went on to destroy another army and kill Emperor Goridan at Misiche in 244. Later the Persians won more battles at Barbalissos and Edessa, conquered the province of Armenia, and sacked Antioch, third largest city in the empire. The barbarian Heruli sacked Athens. The Goths sacked Ephesus. The Goths defeated Roman armies at Beroea and Abritus and forced the abandonment of the province of Daciaâ€Roumaniaâ€before rampaging through Thrace, sacking the great city of Philippopolis, founded by the father of Alexander the Great, and reportedly killing 100,000 Roman citizens before taking an equal number back across the Danube as slaves. The Roman-settled triangle in Germany between the Rhine and the Danube Rivers was abandoned to the Alemanni in 260, and the Alemanni then raided France and Italy. The Iuthungi defeated the Emperor Aurelian at Placentia before recovering the situation with victories at Fano and Pavia. The Franks broke through the Rhine defense line, and the Saxons started raiding the shore of the English Channel.

It was not so much that the barbarians were strongâ€although the barbarians along the Rhine and Danube lines had learned from what was now three centuries of contact with the Roman Empire. More important, perhaps, the forests of Germany had been substantially cut down and turned into fields in the three centuries since Julius Caesar’s raids across the Rhine and what had followed had led the Romans to conclude that the Germans were too fierce to conquer given the very limited plunder on offer. Carthage, or even Macedon, had been in their day much more formidable foes. It was that the Roman Empire of the mid 200s, supporting a parasitic Àlite on top of a plague-decimated population, and riven by annual civil wars over who should be emperor, no longer had the institutions mobilize resources on the scale that the Roman republic had been able to for centuries earlier when it had had less than a seventh of the population of the empire.

Septimius Severus and company did what they couldâ€the army up from 300,000 to 500,000, and so forth. Perhaps the miracle was that the crisis was delayed until the mid-200s. But come it did.

We economists tend to look suspiciously about arguments that a key decision by a powerful man on the spot could have durably changed the course of history. This prejudice of ours has to be wrong sometimes. Certainly Augustus and, after 284, Domitian mattered, and mattered a lot. Certainly emperors in the mid-200s who had all of social, bureaucratic, and military power would have done better than the 28 poor slobes each of whom had only one sort of power. But we economists tend to be attracted, instead, to the hypothesis that it was the shift of the Roman Àlite. They had regarded their lessers as potential partner in conquest, exploitation, rule, and economic growth, and hence to be given opportunity. But after the population decline of the Antonine Plague and then the further decline of the Plague of St. Cyprian, viewing their lessers not as partners in the empire but as subjects to be dominated and exploited was much more the attitude.

Underneath the political recovery, it appears that the economy was falling apart. Perhaps the ultimate lesson is that, when a resource base declines, an upper class finds it next to impossible to scale itself back and live within its means. Shrinking the degree of luxury, the scale of your dependents and subordinates, and the size of your forcesâ€that requires depriving of resources and hence making mortal enemies of those who have been your immediate allies and supporters. It is much easier and much more attractive to simply tighten the screws on those whom you are exploiting. And as you tighten those screws, you remove their incentives and ability to be productive and to grow the economy. This strategy may stabilize the situation in your day. But your successors will then find that you have eaten a good deal of their seed corn, and that they face and even sharper dilemma with even fewer options.

But stability, relative stability, was reattainedâ€a poorer, more unequal, more bureaucratic, but still massive empire in a pattern set by Diocletianâ€at the end of the 200s. It is not until the 400s that independent barbarian kings begin grabbing pieces of what had been the empire for themselves.

Diocletian replaced the *Principate* established by Augustus with the *Dominate*. In the *Principate*, the Emperor had theoretically been merely the First among the senators, with his formal powers (i) the possession of the Tribune’s veto over government actions, (ii) personal ownership of Egypt, (iii) governor (through his deputies) of all of the border provinces with legionary garrisons, and (iv) control over the Prætorian Guard in Rome. In the Dominate, the emperor was addressed as *dominus et deus*: master and god. Under the Dominate, the frontiers were stabilized, againâ€Roumania and the Rhine-Danube triangle in Germany excepted. The population recovered. And a new, semi-stable dynasty, that of Constantine, reigned from 306 to 363, and held things together.

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â€œDevelopmentalâ€œ & â€œExtractiveâ€œ Institutions

What did this transformation from developmental to extractive institutions mean, concretely?

We have lots of documents from Egypt. In one, Anoup is writing to his landlord Flavius Apion. Heâ€™s not writing as a tenant farmer who has made a win-win bargain with Flavius Apion to rent some of his land so he can grow crops. He's writing as all-but-a-slave. He is writing as a dependent and subservient person, under the thumb of his landlord, who exercises total social control over the neighborhood, backed up by bullyboys he has hired away from the legions.

The Emperor Justinian in Constantinople very much does not like this. He wants the soldiers on the frontiers fighting potential enemies who threatened the security of the Roman Empire. He writes to his Praetorian Prefect, concerning the army, and asks the Praetorian Prefect to make the landlords stop hiring soldiers away to serve as bully boys to beat up peasants who don't pay enough rent on time.

But who is this Praetorian Prefect? Yes, it is the same Flavius Apion who is terrorizing Anoup. And Flavius Apion is also the largest employer of legionaries-as-bully boys in all of Egypt.

Dark Age Begins

And in the long run, to maintain the loyalty of this last group, you have to settle your barbarian warriors inside of the Roman Empire, and give them a role dominating the productive peasantry. That then eliminates the tax base that funds the Roman bureaucracy, the Roman army, and the cities. And so Alaric and Stilicho are still primarily Roman generals with barbarian allies. But then Alaric switches, and sacks Rome. And their successors three generations down are primarily barbarian kings, ruling pieces of what had been the empire. And they rule through an nascent noble class made up of those of their barbarian warriors who have been most richly rewarded, plus whatever surviving Roman aristocrats managed to move out of the cities on time, and turn their familiesâ€™ social and bureaucratic power into regional territorial power, as those who had been rent- and tax-paying peasants on their estates who paid them money become serfs and thanes on their territorial lordships who owe them loyalty and service. The medieval feudal system was on its way.

By the early 400s, as the game of Roman high politics was played in the western empire at least, success required having (a) the approval and the blessing of somebody at least calling themself â€œemperorâ€œ, (b) control of a Roman army and of the flow of taxes to support it and reward your allies, but also (c) access to an outside group of warriors of high moral, who did regard themselves not as slaves or servants of a master but of the valued companions and comrades of a leader. Ideological legitimization, military professionalism, taxed resources, and a force with what later thinkers, notably Ibn Khaldun, would call *assibayah*.

Sometimes barbarians take over an empire without a great effect on the overall level of prosperity of civilization. In Mesopotamia Seleukids replace the Haxamanishya, and then Parthians replace Seleukids, and then Sassanians replace Parthians, Umayyads replace Sassanians, Abbasids replace Umayyads, and Turks and Kurds replace Abbasidsâ€”and Mesopotamian civilization goes on. The biggest changes are cultural, and the movement of the capital from Babylon to Seleukia to Ctesiphon to Baghdad.

The collapse of the Roman Empire in the west was very different. The imperial peace and the legal order broke down. As a result, there was an enormous increase in hierarchy at the lower levels of society. People ceased to be free subjects (even if they were not Roman citizens), because to be free was to leave oneself vulnerable to the roving barbarians, who might will kill you, and would certainly steal your stuff. Better to be a serf, or perhaps even a slave. The collapse of the Roman Empire in the West saw a collapse in investment, in urbanization, in the taste for and indeed the ability to produce luxuries. Perhaps the peasants were better offâ€”probably they were better fed if only because population density was so low because risks of violent death were higher. But probably not a good thing for society as a whole, and certainly not a good thing for the freedom of the lower class.

Over the centuries the volume of commerce, the sophistication of the division of labor, the size of cities, and security against roving bandits and barbarian war bands collapses. It takes centuries. But it collapses. The Wikipedia entry on the barbarian Lombard kings of Italy around 600 is worth reading:

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In the western provinces we see an 80% decline in the number of people living in cities. We see the virtual disappearance of trade over links of more than 200 miles. We see the disappearance of large scale production and distribution of things that were comfortable for workers and even for peasants to have. We see the complete collapse of any form of public works. We see only as much law and order as the feudal web network can provide.

The least false way to summarize all of thisâ€”the least false grand narrative, but it is still false, for all grand narratives cannot be but false given that the world is a complicated and confusing placeâ€”is to say that the population shocks of the plagues transform the institutions of the Roman Empire from being at least somewhat "developmentalâ€œ and positive-sum to being overwhelmingly "extractive" and negative-sum. Was I not surprising that they were unable to maintain the pace of investment that had created the capital intensity and the resources to fuel economic efflorescence? That with the collapse of the investment and infrastructure that supported the resource base, that took down the sociological framework and social structures that supported the taste for luxuries that had stabilized Roman civilization at a relatively high level of output per capita and labor productivity?

Historian Edward Gibbon thus saw it as a morality play, the triumph of barbarism and religionâ€”and the coming to power of emperors neither as far-sighted nor as well-intentioned in viewing their office as a public trust as those of the Antonine Dynasty. Bad emperor selected by a flawed constitution, barbarians themselves being pushed westward by the eruption of the Huns out of Central Asia into Europe who had learned much from the Romans, plus the rise of a Christianity that focused elite attention on figuring out how to store up treasure in heaven for the future rather than an how to act and sacrifice to maintain the empire and its civilization now. Yes, barbarians. Yes, religious change of focus from acting to preserve the state to looking toward a future life. Yes, emperors who make bad decisions. Certainly those did not help. But we economists are allergic to morality plays as history.

We tend, right now, to focus on the effects of the three great plagues that hit the Roman Empire, the Antonine Plague around 170 (of Smallpox?), the Plague of St. Cyprian around 250 (Eblola?). And, last, the plague of Justinian (probably the Bubonic Plague in the five hundreds. These plagues were the first empire-and-beyond plagues, were paradoxically made possible by, in fact, the scope and peace of the Roman Empireâ€”that trade and transport were now sufficiently thick and intense that a plague could spread over the entire empire, rather than be confined to a province. What happened to the Roman Empire when the population all of a sudden dropped by a third in a generation? Well, the demands of the empire for revenue and of the upper class for rents and other resources remain the same, even though there are 1/3 fewer peasants to provide them. And still starting around 170. And again, around 250. And again, around 525.

The Ã©lites ratchet up the degree of exploitation. They focus less on sharing the benefits of prosperity and on infrastructure that will enable more prosperity and commerce, and more on figuring out how to extract a larger share of production from the great producer. Instead of everyone being a citizen. Now, there are high status and low status, people instead of having the freedom as a Roman citizen to move what you where you want, and do what you want. All of a sudden, even though you were not a slave, the empire forbade you to leave your particular land.

By the late six-hundreds the Roman Empire in the West was gone. And the Roman Empire in the east was tottering. They were medieval societies with unfree peasants largely bound to the land. And in the east, they were about to face the eruption of Islam out of the Arabian Desert.

Thus I tend to agree with Jongman that it was the shock of the plagues, followed by the particular form that the reaction tookâ€”that the elites were strong enough that their clamping-down control over the *humiliores* was effective, and then there were just not the resources available to maintain the empire at scale given how hobbled it was by the necessity of maintaining the flow of wealth to the now excessively large upper class. Still, Septimius Severus worked miracles: kept the situation from collapsing for a generation and a half before 235. And then the Domitian worked miracles, and re-stabilized the situation after 285. But after that the *Dominate* was surviving on borrowed time.

Do note that the Dark Age was partial. The Roman Empire in the west fell. The Roman Empire in the eastâ€”Greece, Bulgaria, and Anatoliaâ€”survived with ups and downs as a high civilization and a going concern until after 1200. And the Roman provinces of Syria, Palestina, Roman Arabia, Egypt, Libya, Africa, Mauritania, and the Hispanias became part of the Islamic civilization of the early Medieval period, also not a place and time usually thought of as a Dark Age



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It was not so much that the barbarians were strongâ€”although the barbarians along the Rhine and Danube lines had learned from what was now three centuries of contact with the Roman Empire. More important, perhaps, the forests of Germany had been substantially cut down and turned into fields in the three centuries since Julius Caesarâ€™s raids across the Rhine and what had followed had led the Romans to conclude that the Germans were too fierce to conquer given the very limited plunder on offer. Carthage, or even Macedon, had been in their day much more formidable foes. It was that the Roman Empire of the mid 200s, supporting a parasitic Ã©lite on top of a plague-decimated population, and riven by annual civil wars over who should be emperor, no longer had the institutions mobilize resources on the scale that the Roman republic had been able to for centuries earlier when it had had less than a seventh of the population of the empire.

Septimius Severus and company did what they couldâ€”the army up from 300,000 to 500,000, and so forth. Perhaps the miracle was that the crisis was delayed until the mid-200s. But come it did.

We economists tend to look suspiciously about arguments that a key decision by a powerful man on the spot could have durably changed the course of history. This prejudice of ours has to be wrong sometimes. Certainly Augustus and, after 284, Domitian mattered, and mattered a lot. Certainly emperors in the mid-200s who had all of social, bureaucratic, and military power would have done better than the 28 poor slobes each of whom had only one sort of power. But we economists tend to be attracted, instead, to the hypothesis that it was the shift of the Roman Ã©lite. They had regarded their lessers as potential partner in conquest, exploitation, rule, and economic growth, and hence to be given opportunity. But after the population decline of the Antonine Plague and then the further decline of the Plague of St. Cyprian, viewing their lessers not as partners in the empire but as subjects to be dominated and exploited was much more the attitude.

Underneath the political recovery, it appears that the economy was falling apart. Perhaps the ultimate lesson is that, when a resource base declines, an upper class finds it next to impossible to scale itself back and live within its means. Shrinking the degree of luxury, the scale of your dependents and subordinates, and the size of your forcesâ€”that requires depriving of resources and hence making mortal enemies of those who have been your immediate allies and supporters. It is much easier and much more attractive to simply tighten the screws on those whom you are exploiting. And as you tighten those screws, you remove their incentives and ability to be productive and to grow the economy. This strategy may stabilize the situation in your day. But your successors will then find that you have eaten a good deal of their seed corn, and that they face and even sharper dilemma with even fewer options.

But stability, relative stability, was reattainedâ€”a poorer, more unequal, more bureaucratic, but still massive empire in a pattern set by Diocletianâ€”at the end of the 200s. It is not until the 400s that independent barbarian kings begin grabbing pieces of what had been the empire for themselves.

Diocletian replaced the *Principate* established by Augustus with the *Dominate*. In the *Principate*, the Emperor had theoretically been merely the First among the senators, with his formal powers (i) the possession of the Tribuneâ€™s veto over government actions, (ii) personal ownership of Egypt, (iii) governor (through his deputies) of all of the border provinces with legionary garrisons, and (iv) control over the PrÃ©torian Guard in Rome. In the *Dominate*, the emperor was addressed as *dominus et deus*: master and god. Under the *Dominate*, the frontiers were stabilized, againâ€”Roumania and the Rhine-Danube triangle in Germany excepted. The population recovered. And a new, semi-stable dynasty, that of Constantine, reigned from 306 to 363, and held things together.

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â€œDevelopmentalâ€œ & â€œExtractiveâ€œ Institutions

What did this transformation from developmental to extractive institutions mean, concretely?

We have lots of documents from Egypt. In one, Anoup is writing to his landlord Flavius Apion. Heâ€™s not writing as a tenant farmer who has made a win-win bargain with Flavius Apion to rent some of his land so he can grow crops. He's writing as all-but-a-slave. He is writing as a dependent and subservient person, under the thumb of his landlord, who exercises total social control over the neighborhood, backed up by bullyboys he has hired away from the legions.

The Emperor Justinian in Constantinople very much does not like this. He wants the soldiers on the frontiers fighting potential enemies who threatened the security of the Roman Empire. He writes to his Praetorian Prefect, concerning the army, and asks the Praetorian Prefect to make the landlords stop hiring soldiers away to serve as bully boys to beat up peasants who don't pay enough rent on time.

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And in the long run, to maintain the loyalty of this last group, you have to settle your barbarian warriors inside of the Roman Empire, and give them a role dominating the productive peasantry. That then eliminates the tax base that funds the Roman bureaucracy, the Roman army, and the cities. And so Alaric and Stilicho are still primarily Roman generals with barbarian allies. But then Alaric switches, and sacks Rome. And their successors three generations down are primarily barbarian kings, ruling pieces of what had been the empire. And they rule through an nascent noble class made up of those of their barbarian warriors who have been most richly rewarded, plus whatever surviving Roman aristocrats managed to move out of the cities on time, and turn their familiesâ€™ social and bureaucratic power into regional territorial power, as those who had been rent- and tax-paying peasants on their estates who paid them money become serfs and thanes on their territorial lordships who owe them loyalty and service. The medieval feudal system was on its way.

By the early 400s, as the game of Roman high politics was played in the western empire at least, success required having (a) the approval and the blessing of somebody at least calling themself â€œemperorâ€œ, (b) control of a Roman army and of the flow of taxes to support it and reward your allies, but also (c) access to an outside group of warriors of high moral, who did regard themselves not as slaves or servants of a master but of the valued companions and comrades of a leader. Ideological legitimization, military professionalism, taxed resources, and a force with what later thinkers, notably Ibn Khaldun, would call *assibahya*.

Sometimes barbarians take over an empire without a great effect on the overall level of prosperity of civilization. In Mesopotamia Seleukids replace the Haxamanishya, and then Parthians replace Seleukids, and then Sassanians replace Parthians, Umayyads replace Sassanians, Abbasids replace Umayyads, and Turks and Kurds replace Abbasidsâ€”and Mesopotamian civilization goes on. The biggest changes are cultural, and the movement of the capital from Babylon to Seleukia to Ctesiphon to Baghdad.

The collapse of the Roman Empire in the west was very different. The imperial peace and the legal order broke down. As a result, there was an enormous increase in hierarchy at the lower levels of society. People ceased to be free subjects (even if they were not Roman citizens), because to be free was to leave oneself vulnerable to the roving barbarians, who might will kill you, and would certainly steal your stuff. Better to be a serf, or perhaps even a slave. The collapse of the Roman Empire in the West saw a collapse in investment, in urbanization, in the taste for and indeed the ability to produce luxuries. Perhaps the peasants were better offâ€”probably they were better fed if only because population density was so low because risks of violent death were higher. But probably not a good thing for society as a whole, and certainly not a good thing for the freedom of the lower class.

Over the centuries the volume of commerce, the sophistication of the division of labor, the size of cities, and security against roving bandits and barbarian war bands collapses. It takes centuries. But it collapses. The Wikipedia entry on the barbarian Lombard kings of Italy around 600 is worth reading:

In 572â€œ King Alboin was assassinatedâ€œ by his wife Rosamund and her lover, the noble Helmichisâ€œ. They were forced to fleeâ€œ. The thirty-five dukes assembled in Pavia to hail king Clephâ€œ. He, too, fell victim to regicide in 574â€œ. For a decade dukes ruled as absolute monarchs in their duchiesâ€œ. In 584 the dukes agreed to crown King Clephâ€™s son, Autariâ€œ. He assumed, like the Ostrogoth Kings, the title of *Flavio*, with which he intended to proclaim himself also protector of all Romans in Lombard territoryâ€œ. Autariâ€™s marr[ie]dâ€œ Theodelindaâ€œ the Lething dynastyâ€œ died in 590, probably due to poisoningâ€œ. The young widow Theodelindaâ€œ [then] chose the heir to the throne and her new husband: the Duke of Turin, Agilulfâ€œ. A rebellion among some dukes in 594 was preemptedâ€œ.

[A] new organisation of power, less linked to race and clanâ€œ more to land managementâ€œ. The Lombard kingdomâ€œ gradually lost the character of a pure military occupationâ€œ symbolic choices aimed atâ€œ gaining credit withâ€œ Latin[s]â€œ. The ceremony of ascensionâ€œ ofâ€œ Adaloald in 604â€œ Byzantineâ€œ. *Gratia Dei rex totius Italiae*, "By the grace of God king of all Italy", and not just *Langobardorum rex*, "King of the Lombards"â€œ.

In 616 the throne passed toâ€œ Adaloald, a minor. The regencyâ€œ exercised byâ€œ Theodelinda, who gave command of the military to Duke Sundaritâ€œ. A civil war broke out in 624, led by Arioald, Duke of Turin and Adaloaldâ€™s brother-in-lawâ€œ Adaloaldâ€œ deposedâ€œ and Arioald became kingâ€œ. Rivalry betweenâ€œ Arian[s] and Catholic[s].â€œ At [Arioaldâ€™s] deathâ€œ Queen Gundeperga had the privilege to choose her new husband and king. The choice fell on Rothari, the duke of Brescia and an Arianâ€œ.

That is from **Wikipedia: Kingdom of the Lombards** <https://en.wikipedia.org/wiki/Kingdom_of_the_Lombards>.

In the western provinces we see an 80% decline in the number of people living in cities. We see the virtual disappearance of trade over links of more than 200 miles. We see the disappearance of large scale production and distribution of things that were comfortable for workers and even for peasants to have. We see the complete collapse of any form of public works. We see only as much law and order as the feudal web network can provide.

The least false way to summarize all of thisâ€”the least false grand narrative, but it is still false, for all grand narratives cannot be but false given that the world is a complicated and confusing placeâ€”is to say that the population shocks of the plagues transform the institutions of the Roman Empire from being at least somewhat "developmentalâ€œ and positive-sum to being overwhelmingly "extractive" and negative-sum. Was I not surprising that they were unable to maintain the pace of investment that had created the capital intensity and the resources to fuel economic efflorescence? That with the collapse of the investment and infrastructure that supported the resource base, that took down the sociological framework and social structures that supported the taste for luxuries that had stabilized Roman civilization at a relatively high level of output per capita and labor productivity?

Historian Edward Gibbon thus saw it as a morality play, the triumph of barbarism and religionâ€”and the coming to power of emperors neither as far-sighted nor as well-intentioned in viewing their office as a public trust as those of the Antonine Dynasty. Bad emperor selected by a flawed constitution, barbarians themselves being pushed westward by the eruption of the Huns out of Central Asia into Europe who had learned much from the Romans, plus the rise of a Christianity that focused elite attention on figuring out how to store up treasure in heaven for the future rather than an how to act and sacrifice to maintain the empire and its civilization now. Yes, barbarians. Yes, religious change of focus from acting to preserve the state to looking toward a future life. Yes, emperors who make bad decisions. Certainly those did not help. But we economists are allergic to morality plays as history.

We tend, right now, to focus on the effects of the three great plagues that hit the Roman Empire, the Antonine Plague around 170 (of Smallpox?), the Plague of St. Cyprian around 250 (Eblola?). And, last, the plague of Justinian (probably the Bubonic Plague in the five hundreds. These plagues were the first empire-and-beyond plagues, were paradoxically made possible by, in fact, the scope and peace of the Roman Empireâ€”that trade and transport were now sufficiently thick and intense that a plague could spread over the entire empire, rather than be confined to a province. What happened to the Roman Empire when the population all of a sudden dropped by a third in a generation? Well, the demands of the empire for revenue and of the upper class for rents and other resources remain the same, even though there are 1/3 fewer peasants to provide them. And still starting around 170. And again, around 250. And again, around 525.

The Ã©lites ratchet up the degree of exploitation. They focus less on sharing the benefits of prosperity and on infrastructure that will enable more prosperity and commerce, and more on figuring out how to extract a larger share of production from the great producer. Instead of everyone being a citizen. Now, there are high status and low status, people instead of having the freedom as a Roman citizen to move what you where you want, and do what you want. All of a sudden, even though you were not a slave, the empire forbade you to leave your particular land.

By the late six-hundreds the Roman Empire in the West was gone. And the Roman Empire in the east was tottering. They were medieval societies with unfree peasants largely bound to the land. And in the east, they were about to face the eruption of Islam out of the Arabian Desert.

Thus I tend to agree with Jongman that it was the shock of the plagues, followed by the particular form that the reaction tookâ€”that the elites were strong enough that their clamping-down control over the *humiliores* was effective, and then there were just not the resources available to maintain the empire at scale given how hobbled it was by the necessity of maintaining the flow of wealth to the now excessively large upper class. Still, Septimius Severus worked miracles: kept the situation from collapsing for a generation and a half before 235. And then the Domitian worked miracles, and re-stabilized the situation after 285. But after that the *Dominate* was surviving on borrowed time.

Do note that the Dark Age was partial. The Roman Empire in the west fell. The Roman Empire in the eastâ€”Greece, Bulgaria, and Anatoliaâ€”survived with ups and downs as a high civilization and a going concern until after 1200. And the Roman provinces of Syria, Palestina, Roman Arabia, Egypt, Libya, Africa, Mauritania, and the Hispanias became part of the Islamic civilization of the early Medieval period, also not a place and time usually thought of as a Dark Age



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