

# 1

## *The Questions*

At first sight, things are not looking too good for us.

At one time we thought we were at the centre of the universe which did not stretch very far. The stars were like a ceiling. Then Galileo finally showed that we were orbiting the sun, one of many planets doing the same. By the time we got to Hubble's telescope in the 1920s it turned out that the universe was much, much bigger than we thought. And it was expanding at a fearsome rate so that our loneliness was becoming even greater. All we could see out there were terrible fires, huge furnaces of superheated gases roaring in this silence with nothing in between except strange forces of light, magnetism, gravity and yet other energies or forces or dark matter which we do not understand.

We now know that we are a long, long way from anywhere else. The nearest star is 25,000 billion miles away (40,000 billion kilometres). We are lonely, out here on this tiny planet travelling round a middling star, in our tiny suburb of our galaxy, one of billions. Our planet is infinitesimally minute in relation to the size of the universe. It is not even a speck, a grain of sand. The universe and all the other universes or whatever they are, stretching beyond, do not communicate with us. Whatever the forces are, the energies, the shapes, the ghosts out there, we are almost non-beings, a void, we are hardly even a shiver or a shimmer or a momentary vibration in the dark nullity, we have virtually no light or substance, we are almost nothing.

And yet we are here. A miracle has happened. Something amazing happened on this nothing planet. Some collision or spark or combination set off a process of replication. This occurrence was unique, completely unexpected and might have occurred only once in the universe. After huge periods of blind but logical evolution, a creature emerged which could think, which had consciousness, which knew in advance about death. We may be the only intelligence in the universe. It was only over the incredibly short period of the last four hundred years or so that we have seriously begun to work out what makes the universe tick. Newton discovered a fundamental equation published in 1687. Einstein published another in the early 1900s. Now we have our hands on the lever of ourselves through genetics. So if we can stay alive long enough and can keep going at this astonishing rate, we may be able to beat the universe. If the universe has no plan for us, then we have to have a plan for ourselves. If the universe has no god, we will make ourselves god.

The great religions provided an explanation of the universe and the meaning of life. They provided certainty as to the creation of the universe and certainty as to the purpose of our lives. The supernatural religions provided the answers

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for almost everyone and everything. They answered the question of creation, of how the world and the universe came into being, a cosmological explanation which most people could follow with unquestioning conviction and certainty. The religions provided a solution to what was the purpose of our lives, whether the purpose is to worship god, or is how to conduct ourselves so as to attain everlasting life. They provided the rationale for morality. They furnished codes as to how we should control our emotions so that we should live in peace with ourselves and with others. Every aspect of our lives in simpler times was covered off—from our public duties to our parents, our families, our communities and the wider world through to our most private and intimate thoughts which we would fear to divulge to anyone else, however close. But now the old certainties are being challenged.

If the religions are wrong, then we are faced with a vast pitiless universe which cares nothing for our planet or the people on it, which has no plans for us at all, which is not concerned one way or the other whether we survive for a few centuries more or whether we die out a hundred years from now or after only a few more years on this beautiful planet.

We have always had wars, genocides and violence. But never before have the means to wreak violence been so lethal.

This book charts the growth and slow decline of religions over centuries and the fantastic and sudden growth of law. It explores why these things happened and how they affect our view of life. It is about how we survive. In particular, it is about whether the law could fill the gaps left by religion and whether a philosophy of life and of the meaning of life can be formulated without religion.

The purpose of ensuring our survival is for humans to live long enough to unlock the secrets of the universe so that we can master it and continue to survive. So that we, as a species, can be immortal. The main task for us is how to remain in existence to enable us to find out how we survive. If we are alone in this universe, we have a unique responsibility to stay alive. That is the purpose of our existence.

It does not follow that the alternative is the cataclysmic destruction of ourselves and our children, either deliberately with our own hand or by some external catastrophe we could not foresee or stop—a terrible disease, a meteorite smashing into us, some fantastic galactic outburst of radiation. But these things could happen.

We can only survive for the necessary time by maintaining a moral order. We have a duty to be moral in order to survive.

All the great religions have been in place for at least nearly 1500 years and some for possibly 4000 years. They are not going to disappear in a puff of smoke tomorrow. Yet their supernatural doctrines are under threat and they have retreated from the government of most of our societies. In many countries, particularly advanced economies, the number of practising adherents has been shrinking and belief is often only nominal. The moral role of religion is weakening. If religions fail to provide the rules and the justification for them, what do we put in their place?

The law is the one universal secular religion which practically everybody believes in. The question is whether the law can step into the gap left by fading religions and whether the law can carry forward the flame. The law is a highly sophisticated moral system. It is true that the law does not cover private thoughts and petty unkindnesses which most religions do regulate, but that kind of intrusion would not be acceptable. Otherwise the law has immense scope and modern relevance.

The comparison therefore is between the religions and the law, expressed allegorically through their symbolic representatives—the priests and the lawyers.

The legal territory of religions has been reduced in most of the world to matters of private morality. Even codes governing, for example, family law, sex, inheritance and basic crimes—murder, theft—are now outside the territory of religion in most countries. Secular authorities have in most countries over time excluded the clerics from law-making power with the result that it is these secular authorities which frame the fundamental aspects of our laws.

Some of the modern realms of law are of enormous contemporary importance. Examples are the law relating to political democracies, the rule of law and the law between states. Such matters as money, corporations, banks, insurance companies, central banking and taxation are at the centre of our affairs. That applies also to the bankruptcy of corporations and sovereign states, to equity and capital markets and to the massive regulatory regimes which dominate our legal systems. Religions had little to say on these subjects, and, where they did, the religious codes did not approach the specificity and modern relevance of the law. It was left to secular law to deal with the development of even basic topics like contract and liability to others. When the law took off during industrialisation, the religions were taken by surprise and were left with ancient and narrow codes of morality in their scriptures settled during times of simple agricultural and pastoral cultures.

Most people, in developed countries at least, work in businesses, often owned by corporations. The amounts involved are very large. In developed countries, agriculture is typically around only 2 per cent of total production. Our economies are completely different from the agricultural and pastoral economies typical of the periods when the main religions were developed.

The modern domains of law, if badly framed or badly executed, can have devastating consequences on people's lives and can cripple whole societies. The scope of the law and the things it has to do go far beyond the basic crimes and sexual morality, these well-trodden paths which everybody knows about, more or less.

This book will survey wider arenas of law than the basic subjects and seek to explain why the large modern areas of law are central to our societies and their future, why they directly affect the lives of most people, why they ought to be governed by a moral regime and not be left to purely functional rationales which omit the ethical dimension, why, in other words, they should be governed by the moral law. Everything in the law from rule of law principles to bankruptcy through to taxation expresses the degree of the sense of justice of the jurisdiction concerned.

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When the great religions were first announced, they were sensational in the salvation they offered and the hope that they gave. They were inspirational and visionary. Yet the last great universal religion—Islam—is already nearly fifteen centuries old, formed in a completely different world.

We live in a society which is suffused with law and morality. Unlike religions, the law has no burdensome rituals. You do not have to perform sacrifices. You do not have to prostrate yourself before it or utter words of devotion and worship or sing hymns or go on pilgrimages. In ideal conditions, it derives its content from consensus and the will of the people. It is willing to change when change is necessary. It faces scientific and other challenges with equanimity and coolness. It is the foundation of our civilisation, our societies and our survival.

The rule of law does not offer the consolations of religion. But the rule of law empowers and liberates us and makes it possible for us to do things in peace which otherwise we would not be able to do. It enables us to pursue happiness. It gives us the order and freedom to pursue a greater goal. We control it. The law is our servant not our master. The law at its best is the most important ideology we have.

As I write I see the second hand on my watch hasten round the dial in ferocious frenzy, an insistent remorseless madness. Surely we don't have to be reminded of mischievous time quite so constantly as we plod along, hoping for the best, searching for some meaning in all this. Yet it is to the future that we look—not just ten years or a hundred years or even a thousand years, or even a million years, but longer, much longer.

This is not a melodramatic book intended to torment us about the apocalypse. Yet at our back we always hear some terrible chariot hurrying near, pulled by foaming horses coming out of the forests of the night whipped by the blind charioteer, a charioteer who cares nothing about this tiny insignificant planet, who cares nothing about morality or law or religion, who is intent on some shocking and pitiless purpose, who is relentless, ruthless, who has always been there.

This image of the terrible chariot is one of the three key images which are bass notes which resonate throughout this book, even though I mention these images quite sparsely. Who is this charioteer who horrifies us? What is the meaning of this image?

The second image which we will meet soon and at other crucial points in this book is that of the raft or the small boat out in a stormy sea far from anywhere with virtually zero hope of survival.

The third image is a cluster of concepts about time—clocks, God as a watchmaker, history, the future, mortality. Time is a quality which we anxiously measure but don't understand. Together these images represent deep things which haunt us.

## 2

# *The Purpose of Morality and Law*

## Introduction

This chapter elaborates on the reason for morality and law, why we have these institutions, and does so by a parable or allegory of two highly symbolic paintings and a mining disaster.

The first painting is the allegorical painting by Delacroix, *Liberty Leading the People*, painted in 1830 and hanging in the Louvre in Paris. The whole of society is represented in this picture—the merchant class, the academics, the military, the peasants and youth. All of the people in this tumultuous scene are astir and infused with some burning ideal. They are well armed. The youth has two pistols. The representative of the merchant class, with the big black hat, holds a formidable barrelled gun. Liberty herself clutches in her left hand a long rifle with the bayonet out. These people intend to get their way for their cause, whatever it is.



*Liberty Leading the People*

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In the original, the lady is holding the French tricolour flag. In our version, she is holding the flags of many nations because the issue is not just limited to France in 1830. The boldness of her ideal is symbolised by the fact that she does not care one way or the other whether she does up her buttons. The revolution always happens when you are in the shower. The gentleman lying on his back in the bottom left-hand corner did not even have time to put on his trousers. He has got only one sock on.

In Delacroix's mind, the liberty she was fighting for consisted of basic political freedoms of democracy, freedom of speech and the like, freedom from despotism and autocracy. You could also say that what she allegorises is freedom from restriction, a universal symbol of hope and our aspirations.

Some of the biggest restrictions in our lives are the restrictions imposed by moral and religious codes, legal systems, customary law and statutory law. Indeed you could conclude that morality and the law are systems of restriction, manacling, fettering and tying us down.

The answer to the question of why all this is considered necessary is debated in the next painting.



*The Raft of the Medusa*

This is *The Raft of the Medusa* painted by Géricault between 1818 and 1819. It also hangs in the Louvre in Paris, a stupendously huge canvas, in the same hall and on the same side and on the same wall as Delacroix's picture. This is one of

the most iconic and powerful pictures ever painted. It really gets to the point—the point of where we are and what we are.

The French frigate the *Medusa* hit a sandbank about 60 miles (90 kilometres) off the west coast of Africa, then Senegal but now Mauritania, on 2 July 1816 at 3.00 pm. The terrified passengers and crew built a raft out of parts of the ship. The idea was that the crew would tow the raft with six rowing boats to the nearest coast. Hence nothing was left on the raft to navigate, no oars, no compass, no rudder.

The crew, including the captain, had other ideas. They cut the tow ropes and disappeared over the horizon. Most of them died on the 300 kilometre walk along the desert coast to St Louis in Senegal. The raft was left to float around helplessly in the scorching mid-summer Saharan sun.

Altogether 147 people got on the raft. There was one woman who was subsequently thrown overboard because she was screaming. When the 147 first got on, they were up to their waists in the sea. So they threw away some of the barrels of biscuits and brandy to lighten the load.

They rolled around in the sea for the next 12 days, before they were rescued by the brig *Argus*. Only 15 out of the 147 survived. In fact Géricault has 20 survivors in his picture for the sake of the composition. In particular he painted in three Africans, including the man waving his shirt at the distant rescuing ship, in order to celebrate his views about the anti-slavery movement, freedom and liberty.

The man pointing excitedly is Corréard who subsequently wrote an electrifying and accusatory bestseller about what happened on the raft. This set him on a collision course with the authorities. The figure with black hair lying on his face with his hand over the beam is Delacroix, the same Delacroix who painted *Liberty Leading the People*. He was a friend of Géricault, who used Delacroix as a model. When he first saw this painting, it was reported that he ran down the Place de Vendôme in Paris screaming from terror and ecstasy.

The picture portrays the immensity of human nobility, of suffering and courage in the face of adversity. The figures are heroic, yet the reality was very different. When the rescuing ship arrived, the raft stank. The survivors were crazed. There were bits of human flesh hanging on the makeshift mast to cook in the sun.

Most of those who died on the raft did not die from famine or thirst. They were killed in the fighting for the remaining brandy and biscuits.

A schooner discovered the hull of the *Medusa* 52 days after the shipwreck. Three people were still on the ship. If everybody had not panicked and had stayed on board, they would probably all have survived. That is how you make simple mistakes when fear and unreason take over.

So the main question which this picture poses is whether Delacroix's lady with the flags continues to be right in her ideology when we are on the raft. Can we survive with liberty and freedom from law when we are in dire straits? If our livelihoods are threatened, don't we need iron rules for that situation—to try and avert the disaster and then deal with it toughly when it happens? Does not liberty deserve to be snuffed out when survival is at stake?

My third picture is of the Chilean mine disaster in 2010.



**Chilean miners**

*Photo from the Observer, 17 July 2011*

On 5 August 2010, 33 miners were deep down in the San José mine. They had stopped working for lunch in a tiny safety shelter which was 688 metres underground—more than half a kilometre or nearly half a mile. Ten minutes later there was a huge crack and rumbling, a thunderous sound reverberating through the mine.

A massive slab of rock the size of a skyscraper had shed off the mountain, trapping the men below tons of collapsed rocks.

They were down in the mine for 69 days. There were 33 of them. All of them survived.

Yet in the comparable case of the *Medusa*, only a fraction survived. So what was the difference, apart from the obvious difference of circumstances?

One of the key differences was that the miners, faced with their terrible predicament, made rules. They elected a leader, a captain of the ship. They measured their available food and water and agreed on the rations for each person for each day. They were not university-educated learned types, but they all had an instinct about what had to be done.

So they passed laws, they constituted a makeshift legal system to govern their conduct. There was a captain who was to be in charge and whom they would obey. In other words, they had a legal constitution and a lawful government. They promulgated laws parcelling out the food on an equal basis since, in the face of death, we are all equal. They fettered themselves by rules so that they could liberate themselves, be free.

## The Answer to Why We Need Law

So that is the answer as to why we have law. We have law in order to survive. We have a duty to survive in order to discover if there is ultimate meaning, to answer the questions, to ensure our permanent survival if we can. We have made great advances in understanding but we are still nowhere near understanding, for example, what is beyond the universe, what came before the universe or how we got here or get there, or even understanding ourselves or whether our minds are developed enough to understand if we can understand. Our science is in its infancy.

This duty is an obligation which we on earth here now owe to future generations who come after us, the future unborn. We owe it to our children, to our children's children and to their children. And their children into forward times unknown to us in a world undreamt of by us, when all the towers of the mind we have built up to now become in comparison an airy nothingness.

As the astronomer Carl Sagan observed, we owe this duty also to all who came before us, all living things, stretching back to the miracle creatures of ancient times which led to us.

This duty is born of how we are made: the most natural instinct for us is to preserve ourselves and to preserve our issue. Yet the duty has a more profound basis. If we are unique, we can't just turn our backs, walk away and heedlessly let go of something miraculous, let it slip away. We have this duty because we are a miracle. And the duty is now a positive one. If evolution was at one time blind, now it must be with open eyes, all-seeing, deliberate. The preservation of humankind must be our chosen path, not just carelessly left to destiny or mechanical cause and effect or the freakishness of fate, but specifically willed by us. We must do everything we can to enhance our chances of survival and do nothing to endanger our chances of survival. The history of the species has granted us the gift of free will, the ability to choose, to decide if we will end up as nothing, squashed, incinerated, sand and ashes, scattered in the winds of the cosmos, just particles returned to particles. Or to elect if we will be the elect.

We have this duty too because we could be on the raft or in the deep mine without knowing it.

You do not need to read scholarly tomes on the philosophy of law or jurisprudence to know the basic purpose of law.

Many other theories are advanced as to why we need law. Some say that the purpose of law is the general good or the reconciliation of the will of one with the liberty of all others, or that the aim is to have an existence which is peaceful and orderly as opposed to nasty, brutish and short. Others say we need law to promote equality, or to impose a redistribution from the rich to the poor, or to satisfy the desire for retribution, or to fulfil our feelings to see that justice is done, or to protect our property or protect ourselves from injury, or to improve the chances of prosperity, or to ensure the greatest happiness of the greatest number. All these theories have force and truth in the particular case, but they all have as their base and foundation the need to survive.

I mean survival in its widest sense, not just our brute survival, but also the survival of our civilisation, our learning, our freedom to pursue our lives, everything which advances us.

It goes without saying that much law is not directly concerned with survival, for example, restrictions on where you can park your car. Vast swathes of law are of minor import or technical. But even in these areas, the orderliness in minutiae, in tiny detail, has a greater overall purpose. You can imagine the confusion if we had no parking laws, no rules about which side of the road to drive on, no rules about traffic lights or roundabouts or stop signs. You can arrange laws in a hierarchy of needs.

We do not need to enquire exactly what law is, for example, whether it is a divinely ordained set of natural and immutable rules handed down by a supreme deity up there in the sky, or a tradition of ancient wisdom transmitted by saintly elders, or whether it is a social contract or crystallisation of customary co-operation, or whether it is a set of commands by some sovereign, or whether it is a body of rules imposed by the ruling class on the suffering people, or whether it is a set of principles discovered by experience or experiment or founded upon philosophical speculation. All of these questions, much debated by the philosophic jurists, come down to the same issue—survival. And law is a characteristic of all societies which have progressed beyond barbarism.

The rules which promote survival are not some savage rules about the survival of the fittest. They rely on deep principles of the rule of law, morality, justice, whatever you like to call it.

There is no question that the creation of law is the most fundamental and important creation of civilisation. It is the foundation of society. Hume correctly said in his *Treatise of Human Nature* ‘Human nature cannot by any means subsist without the association of individuals: and that association never could take place were no regard paid to the laws of equity and justice’: *Treatise of Human Nature*, m ii ‘Of Justice and Injustice’.

## A World Without Law

Without law, there would be no democracy or safety from tyrants, no security from violence or theft, no protection of women from sexual attack, no property. Anybody could occupy your home or take your food or money. There would be no power or freedom to govern your life by contract or to give away your property by will, no contracts to govern trade, no compensation for negligent injuries done to you, no redress for lies or misrepresentations, no remedy for physical injury, no money as a means of exchange, no banks to put it in, no corporations to conduct business and indeed no business at all. Gangs would rampage through the cities smashing what they liked and taking what they liked. The biggest gang of brigands and thugs would take over, terrorise the people, expropriate their property, arrest and execute anybody they liked according to

their whim or some arbitrary emotion or fanatical creed. The world would be savage and barbaric. In the end, somebody would say ‘why don’t we have laws to stop this behaviour?’ Exactly what has happened on countless occasions from ancient times to the failed societies of the present and exactly what should have happened on the raft of the *Medusa*.

When I say the fundamental purpose of law is survival, I do not mean just survival of oneself. All of us want to survive personally and have a very strong instinct of self-preservation. I include that in the concept of survival but I really mean that the ultimate purpose of the law is the survival of humans.

Some people think that humans are basically good and that, if left alone, the obvious rational case for forbearance would be enough, that all is needed are customary understandings which are not subject to coercion or police sanctions, which are not subject to forcible compensation if violated. They think that social pressures, hostile reactions, contempt and in serious cases ostracism, would be enough to sanction wrongful conduct inimical to the orderly conduct of society and that the desire for moral reputation would be stronger than a system of law based on coercion. Some think that shame and guilt are enough.

This view is unduly optimistic as pointed out by the jurisprudential lawyer HLA Hart in *The Concept of Law* (Oxford University Press 3rd edition, 2012). As he says, if most people are not devils, nor are they angels. People are mostly in between these extremes. There are at one extreme a group of people who are devils. This extreme, and the fact that people tend to lose their social morality and look after only themselves at times of threat or danger, means that legal rules are necessary in order to survive. Some people are saints. Most people have an innate or acquired sense of basic morality and most people are good most of the time. But some people are not good most of the time. On occasion large parts of the population of a society can be pushed into barbarity.

There must be some protections of the people from death and injury at the hands of others and expropriation of their assets. People must be able to sell things and their services, they must have the power to contract and bequeath their property by will in a legal environment which enforces these things so that they can have guarantees and confidence in the future conduct of others. Reliance on the rationality of mutual forbearance on the grounds that it is rational to co-operate voluntarily and to renounce and give up and sacrifice some of one’s freedoms of behaviour in the common interest does not seem sufficient. This is so even though there are many people who would observe this prudential calculation, as well as a few who have an altruistic interest in the welfare of others or who honour the moral system as deserving of respect in itself in the same way as they honour religious morality.

All of these things support voluntary co-operation, but there needs ultimately to be a coercive system in the background. The theory of the innate natural goodness of man—which was announced by the 18th-century French philosopher Jean-Jacques Rousseau that humans are noble savages corrupted by social institutions—is an illusion. We have not been able to live without police forces or the military or enforcing courts, even at the most minimal level.

The briefest acquaintance with history shows how savage humankind has been, how shocking the atrocities and killings.

There are other reasons why non-coercive customs, habits, traditions, and social conformity or standards or just plain common sense are insufficient. In the first place they can operate only in very small societies, such as primitive bands and villages where hostile reactions and scorn can have direct effect quickly. These social pressures cannot in practice operate universally in urbanised societies where the biggest cities have tens of millions of people and where there is no means to organise voluntary ostracism other than by a coercive legal system.

Secondly, customs tend to stagnate and are immune to the changing needs of a society whereas the law is capable of swift change if necessary, often too swift. Hence custom and tradition tend to be static and quickly become out of date, the result of inertia.

Thirdly, the scope of customs is uncertain and unpredictable so that it can be hard to determine what is allowed and what is not. In the case of the law, there is a recognised authority, in the form of a ruler or a democratic parliament, which promulgates the law and in most countries publishes the law. Indeed there is a principle of the rule of law that, especially in the criminal law, violations should be clear so that the citizen knows exactly what is prohibited. In private law, such as contract, there is also a strong emphasis on predictability, again so that the parties know exactly what they have to do and what liabilities they have. They need to be able to plan and to insure. You do not get this result from unwritten customs which tend to mean just what people think they mean on the day and which are subject to prejudice, anger, the desire for revenge and the passions of the moment. All this is well explained by Professor Hart and endorsed by human experience.

Our societies may decide that they can do without religion, but they can't do without law.

So if you ask if the law affects just about everybody's life, it certainly does.

## Conclusion

This still leaves the basic questions. What should our laws say? How much law should there be? We still have to resolve the issues of freedom against despotism, of anarchy against discipline. We are still left with the question of how much risk and restriction we create in order to control risk and improve our chances of survival, of staying alive long enough to discover that we need to discover.

There is another version of Delacroix's famous lady. This is the figure which faces you as you come into New York Harbour. She is slightly better dressed than Delacroix's version. She is holding, not a gun, but rather a torch in her uplifted right hand. In her left hand she holds a tablet invoking the law. She represents not only liberty, but also welcome to the peoples of the world: she represents the idea of one planet. And she represents the rule of law.





# 3

## *The Past and the Future*

### Introduction

This chapter synthesises the rapidity of change over the last couple of centuries, how this increases the complications and the intensity of the conflicts which potentially face us, and why this underlines the need for a moral order to ensure that we enjoy the survival benefits of our achievements.

I choose 1830 as the pivotal date. This is about the time that we estimate that the population of the world first reached a billion people (give or take a decade) and accelerated after that up to the present seven billion. The year 1830 is a symbolic date to express a wider circle of time around that date—everything did not happen just in one year and often the changes took place over many decades. Around that date there commenced a burst of scientific invention and technological progress which completely transformed our lives and which posed challenges to the traditional beliefs of religion. At the same time there was a surge in wealth expressed as gross domestic product—GDP—of the world, although very unevenly spread.

In turn the law was also transformed, as it adapted with quite some agility to take into account what was happening. The great religions had more or less settled their moral systems by around 900 CE at the latest (and often many centuries earlier) and did not participate in the legal revolution that was taking place—a revolution which involved laws dealing with corporations, banks, insurance companies, the regulation of products and services, and a host of other topics including constitutional democracies and codifications of the rule of law. This clerical withdrawal, often forced on them by secular rulers, had in addition to science the adverse effect of giving fresh impetus to secularisation and allowed secular authorities to determine the ethical orientation of the new topics of law.

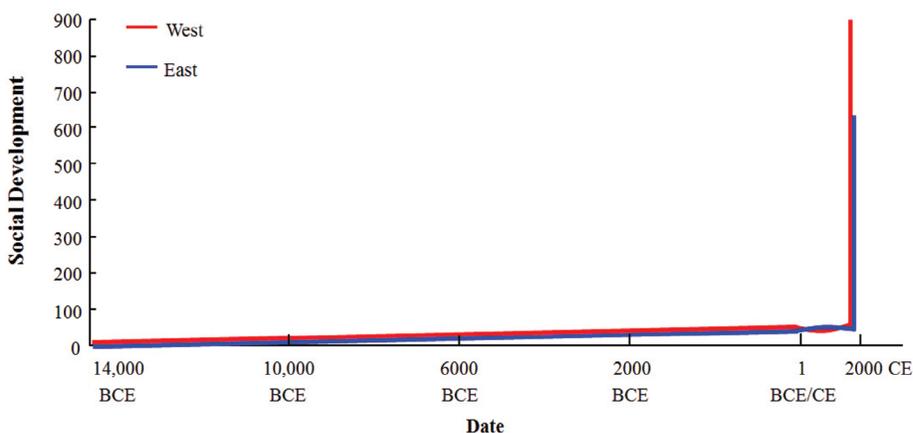
In this chapter I also offer some tentative predictions for the future which have a bearing on the moral regimes which govern us and our survival. I surmise that the changes we have experienced over the last couple of centuries will be as nothing compared with what is to come. If that transpires, then the implications for human beings and the ethical regimes they construct will be profound.

In addition I touch on a subject which haunts us—time. Our lives and our future are played out against the background of time. We do not know if we are in the fresh dawn or the darkening twilight of our existence on this planet, whether it is within our grasp to master our destiny, whether our span of time is long enough or too short.

## Growth of Social Development

First we take a very long view of history to measure very broadly the rate at which humans have learnt to master their environment to the present extent over many centuries. This progress can, if you like, be called ‘social development’. Most of the astonishing advance took place after around 1750 to 1830.

The figure below ‘Growth of social development’ shows social development in the West (coloured red) and in the East (coloured blue) since 14,000 BC. The figure is based on one by Professor Ian Morris *Why the West Rules: For Now* (Profile Books, 2010). See also Nick Bostrom, *Superintelligence* (Oxford University Press, 2014) p 3 which exhibits a similar figure.



Growth of social development

Professor Morris explains that social development is roughly the state of development and technological mastery of a society. The lines on the figure are built up out of four variables which are considered indicators of human social development.

1. The first variable or trait is the ability of societies to capture energy. Energy capture includes such things as extracting energy from plants and animals to feed ourselves, and capturing energy from wind and coal and from explosives. Energy capture is considered so fundamental to social development that in 1940 the celebrated anthropologist Leslie White proposed reducing all human history to a single equation:  $E \times T \rightarrow C$ . E stands for Energy, T for Technology and C for Culture. That is, if you combine energy and technology, you achieve an advanced civilisation.

The simplest way to think about energy capture is in terms of consumption per person, measured in kilo calories per day. For example, in the year 2000 the average American burned through some 228,000 kilo calories per day.

2. The second trait counting towards human social development is organisational ability for which Professor Morris uses a proxy, closely related to organisational capacity but easier to measure. The one chosen is urbanism because the organisation needed to keep a city going is vastly beyond anything earlier society could have managed. Running Lagos with a population of 11 million or Tokyo with a population of 35 million would have been far beyond the Roman Empire's capabilities. This is why social scientists regularly use urbanism as a rough guide to organisational capacity.
3. The third trait included in the calculation is information processing. The term is used in its wider sense so as to include the ability to process and communicate prodigious amounts of information—the invention of writing, then printing, then computers. Information processing is critical to social development.
4. The fourth trait is the capacity to make war, where technology has often proved to be the winner. An example is the victory of the Spaniard Francisco Pizarro who in 1532 at Cajamarca in Peru, together with 60 horsemen and 90 tired foot soldiers, overcame the army of the Inca leader Atahualpa and 90,000 warriors and thereby conquered the Inca Empire in Peru of between five and ten million people.

These traits are not the only way to measure social development but it is probably true that even if one used different traits to measure similar things, the overall pattern and the overall scores would not change much.

The graph is similar in intent to the United Nations Human Development Index which measures life expectancy, education and income, ie, whether people have the opportunity to realise their potential.

Professor Morris admits the figures are chainsaw data but it does not really matter that there may be very large inaccuracies in terms of the overall result. A chart covering 16,000 years is going to iron out occasional lumps and bumps: sometimes the West was ahead of the East (in 2000 BCE for example) and sometimes the East was ahead of the West (at the time of the Song dynasty (960–1279)). It is certainly arguable that the sudden upward turn is exaggerated, for example, that development lifted earlier on so that the near-vertical spurt in 1830 started from a higher plateau.

In any event, what the figure shows is that until about 1750 to 1830 social development in both the East and the West was extremely low. Then it suddenly shot up around about 1830. On this view, nothing much really happened in terms of social development until then.

The figure does not measure moral development since ancient times. In particular it does not take into account the launch and articulation of the great religions. It does not take into account the development of that other great ethical system, the law. These are subjects which we will be debating throughout this book. The figure does however show the pace of our intellectual feats, the bound with which we leapt up in the last two centuries—a leap which carries with it both hopes and threats.

## Understanding Time

Before we continue with the analysis, it is useful to have a long perspective on time. To understand history and to understand ourselves, we have to understand the measure of time and how very short relevant human time is when compared with the time of the universe and the earth.

Time to most of us is a continuous series of events and circumstances which seems to be perpetual and to us seems only to go forward. The universe is thought to be about 14 billion years old and the earth about 5 billion years old. Human beings were bipedal about 2.5 or 3 million years ago, maybe more. The Neanderthals appeared about 200,000 years ago but were wiped out by the new *homo sapiens* by 25,000 BCE. There were probably 40–50 ice ages between 190,000 and 90,000 BCE. The population of humans in 100,000 BCE could have been as low as 20,000.

The expansion of *homo sapiens* out of Africa took place between 150,000 and 60,000 BCE, reaching Western Europe around 35,000 BCE. In 16,000 BCE you could walk on dry land from southern England to Jakarta and then up to Alaska where you would be met by a wall of ice stretching across Canada to Europe and beyond. The great melt started from about 17,000 BCE and was halted for about a thousand years from 10,800 to 9000 BCE—called the Younger Dryas. In the interim, the sea rose perhaps 140 metres or 400 feet.

Ancient history is known to us almost exclusively through archaeology and supposition. Visible history really only began around 3100 BCE when the Nile Valley was united into the largest kingdom in the world. King Khufu's 450-foot Great Pyramid was built around 2550 BCE and was the world's tallest building until the construction of Cologne Cathedral in Germany in 1880. It remains the heaviest building in the world at a million tonnes.

Although there were early advances in terms of the use of fire, the use of stone and metal tools, the domestication of animals, the domestication of grasses, pottery, the invention of glass, the daubing of art in caves and the like, we have little evidence of the detail of what happened in history until about 3000 BCE and in practice not much before 1000 BCE in most regions of the world. What evidence there is indicates that humans were almost asleep until then. It seemed to take centuries for anything momentous to happen. So reasonably visible history occupies only about three thousand years.

A span of time of three thousand years is absolutely tiny. There have been many comparisons of how small this is by reference to fractions of a second before twelve o'clock or a fraction of a width of a hair at the end of your finger nails if you hold your arms outstretched, when compared with geological time and the age of the earth. We may take it that it is only a tiny sliver and slice of time since human beings really got going, infinitesimally small. We are so far just a fleeting flicker.

This fact underlines our minuteness in the universe and it also underlines the magnitude of our achievements and hence the urgency of our duty to ensure

that we are the masters of ourselves and hence potentially the masters of what is around us.

## Measuring the Closeness of History

We who are alive now are separated from those who came before us in history by only a few steps in time. If you laid the lives of selected prominent people, each living around 70 years, end to end from now back into history, there would only be seven people between you and Nicolaus Copernicus, who (apart from an ancient Greek philosopher) first suggested that the earth was going round the sun and who died in 1543. The lives could be those of kings or prime ministers or philosophers or scientists or artists. Seven lives of 70 years each is just under 500 years.

If you took another 21 lives of 70 years, each laid end to end, this would bring you back to the time of Christ. Another seven lives would bring you back to the time of the Buddha and Confucius around 500 BCE. Yet another seven lives would bring you back to King David of the Israelites in 1000 BCE—around the beginnings of recorded history. So 42 lives in all would more or less cover the whole of 3000 years of recorded history aside from history discovered by archaeology.

The lives provide a framework for the memorisation of history. It does not really matter that there are gaps or overlaps and the lives do not have to be exactly 70 years.

To show you how this works, let's take an example for those born in 1973—long before your time, of course, but let's say it's you. The links of lives could be:

- |                       |           |
|-----------------------|-----------|
| 1. Pablo Picasso      | 1881–1973 |
| 2. Charles Darwin     | 1809–82   |
| 3. Franz Joseph Haydn | 1732–1809 |
| 4. Isaac Newton       | 1642–1727 |
| 5. Galileo Galilei    | 1564–1642 |
| 6. Michelangelo       | 1475–1564 |

Only five lives between you and Michelangelo! You are linked back nearly 500 years, to 1475.

That puts you back not only to Michelangelo but to a number of other extraordinary people active at the time—Leonardo da Vinci, Raphael, Titian, Machiavelli, Christopher Columbus, Nicolas Copernicus, Martin Luther and John Calvin who, like Michelangelo, also died in 1564. That was the year William Shakespeare was born.

So this shows how history squeezes like an accordion if you compose a memorable tune to keep the time and organise time into bars of music. The abbreviation of time to give order to the noise has the advantage that we reach a better sense of the volatility of events. It would be out of the question for anyone to guess at the beginning of a recent century what the world would be like at the end of the century. Even if we took the decades of the 20th century, few could have guessed at the beginning of each decade what would happen during that decade. Events are very unexpected which means that our ethical regimes have to be resilient.

If the past is so close, then the future is also close. Even a thousand years is close, even ten thousand or a hundred thousand, even a million years. We can already trace ourselves back much further than that to a creature recognisably like us, and life itself is billions of years old. If we can contemplate time past, we can also contemplate time future. In contemplating time future, we should get above the preoccupations of time present.

## The Inventiveness of *homo sapiens sapiens*

An example of why the line in the graph suddenly shoots up from about 1800 is the sudden acceleration of scientific invention since then.

It may have taken humans a few thousand years to get going but once they began inventing in a big way, the advances were dramatic. Apart from breathtaking discoveries in the 17th century—Galileo’s confirmation in 1632 that the sun was the centre of the solar system, Newton’s announcement of gravity in 1687, and William Harvey’s discovery of the circulation of the blood in 1628, for example—and apart from gathering inventiveness in the eighteenth century—such as the first steam engine (1785), the spinning machine in 1769, and Edward Jenner’s inoculation against smallpox in 1796, for example—apart from all these, nearly all modern science and technology was produced in the 19th and 20th centuries. If you wrote a large tome on the history of science, the period before then would be the first paragraph. Inventions begat inventions. We moved from glimmers in the darkness to the sweet light of dawn.

It is true that writing, paper, Arabic numerals and printing were much earlier inventions—and also the basis of the later bound ahead—but it was during the last two centuries when science took off.

Medicine hardly existed before that, channelled as it was by the erroneous theories of Galen (c 130 to c 210) that the human body is dominated by four fluids—blood, yellow bile, phlegm and black bile. Cures were dangerous and irrelevant, for example, bloodletting. But then came vaccines, anaesthetics, anti-septics, pharmaceuticals of all kinds, accurate diagnosis and elegant surgery. Big killers became treatable, for example, tuberculosis. After the accidental discovery of penicillin by Alexander Fleming in 1928, penicillin was first produced in commercial quantities in 1942.

In chemistry, like Galen, Aristotle (384–322 BCE) put us on the wrong track for nearly two thousand years by his simplistic classification of elements into air, earth, fire and water. In 1789 the treatise of Antoine Lavoisier, a French tax collector and lawyer, revolutionised chemistry. He was guillotined for his financial dealings, a reminder of what a revolutionary mob thinks of science. Joseph Priestley had earlier discovered oxygen in 1774. This was the man who sold a recipe for soda water for practically nothing to Mr Schweppes. Lavoisier's work paved the way for the triumph of chemistry and the omnipresence of its products. The Russian Dmitri Mendeleev finally demolished Aristotle with his periodic table of the elements in 1869. When it was reported that Mendeleev had technically committed bigamy under Russian law (because he had not waited seven years before remarrying), the Tsar observed 'Mendeleev may have two wives, but Russia has only one Mendeleev'.

One could go on through all the sciences, adding to the accumulating pile. If one were to choose the ten most transformative inventions of the last two centuries, the following would surely be worthy of consideration:

1. The invention of power, first the steam engine (James Watt), then electricity (largely the work of Michael Faraday (1791–1867), then the petrol engine (Gottlieb Daimler, 1882), then the aeroplane, then the jet engine (Frank Whittle, 1937) and then the rockets which put man on the moon in 1969. In 1935 the British driver Malcolm Campbell drove Bluebird at 276.8 mph at Daytona Beach, Florida. In 1936 the British female aviator, Amy Johnson, flew from England to Cape Town in three days, 6 hours and 25 minutes—in 1941 she drowned after crashing into the Thames Estuary.
2. The announcement by Charles Darwin of the workings of evolution in his *Origin of Species by Natural Selection*, published in 1859. This work completely transformed our view of history and our view of ourselves.
3. The invention of radio waves, mainly the work of Heinrich Hertz (1857–94). In 1901 Marconi sent the first radio signal across the Atlantic from Cornwall to Newfoundland.
4. The special and general theories of relativity produced by Albert Einstein in 1905 and 1915. These established that only the speed of light is constant for everybody; time and space are relative.
5. The terrifying discovery by Edwin Hubble in the 1920s that galaxies were receding from us at a velocity which increased the further away they were from us, so that we become more and more lonely.
6. The production of the first atom bombs in the 1940s. Enrico Fermi's first atomic pile went critical in 1942 in a Chicago squash court.
7. The production of a contraceptive tablet in 1952.
8. The discovery in 1953 of the DNA double helix by Francis Crick and James Watson, building on the work of Rosalind Franklin. The DNA helix has a diameter of two nanometres. A human hair is about 25,000 nanometres in diameter. They discovered the notes on the piano of inheritance and genetics, leaving it to subsequent generations to learn to play them.

9. The theoretical development of the Standard Model of particle physics in the 1960s onwards, following on from Ernest Rutherford's discovery in the 1920s that atoms have nuclei. Particle physics led to 'Big Science' and enormous cyclotrons. The first cyclotron atom-smasher was devised in 1931. One awaits practical results from these conjectures in order to qualify them for the top ten. So far we are advised that there are vast numbers of neutrinos, although we have not found any, and that around 96 per cent of dark matter and dark energy have gone missing.
10. The invention of the computer and the internet. The first personal computer was marketed in the United States in 1975.

Other inventions of these two centuries could easily be entered in the competition—the camera, television, the germ theory of disease, radioactivity, x-rays, the radio telescope, the electron microscope, the Doppler Effect, quasars, pulsars and black holes, carbon-dating, the machine gun, cement, reinforced concrete, continental plates, dyes, bleaches, thermometers, even nylon, frozen peas, and the humble vacuum cleaner, fridge and washing machine.

Inventions have given us a degree of mastery over ourselves and our future that we never had before. They have dramatically improved our potential for survival and mastery of the ultimate destiny of human beings. The promotion of science is a priority for us.

The sprint of science over the past two centuries is matched by quickening velocity in other fields—the novel, the film, styles of painting, architecture, music. Until the late-18th century, the novel was a novelty. Artists at that time never contemplated impressionism.

One consequence of the acceleration of science and technology is greater prosperity but also greater risk. Never before have we had weaponry of such destructive capability. Hence the need for an international legal order, for what it is worth, to endeavour to mitigate the dangers. Another consequence is that the rational spirit of enquiry at the heart of science and the inventions of science sometimes cast doubt in the minds of some people on the assertions of their religion.

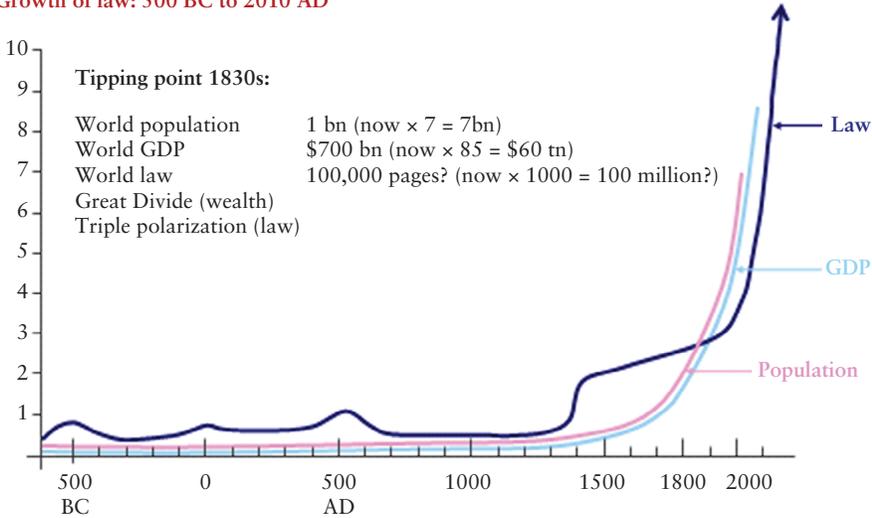
A third consequence is that, if we rightly admire the magnitude of our achievements to date, they are not enough, nowhere near enough. Too much is unexplained. At a date not so far from now—even 50 years, let alone a few thousand, we may well regard our present state of the art as antique and archaic, quaint. If we are to give time for invention and enquiry to further our knowledge to enable us to survive, there must be a moral order which ensures that we preserve what we have done so far and what we have yet to do.

## **Growth of Population, Wealth and Law**

The next figure to look at is the 'Growth of population, wealth and law' which tracks population growth, the increase in GDP and the growth in law since

500 BCE. We will see that it was from around 1830 onwards that the law expanded with colossal rapidity and in the process applied ethical principles in contexts unknown until then on such a scale.

**Growth of law: 500 BC to 2010 AD**



Population scale 1 = 1bn people | GDP scale 1 = US\$1 trillion | Law scale 1 = 100,000 pages

**Growth of population, wealth and law**

The figures for population and for GDP are based on Angus Maddison, *Contours of the World Economy 1–2030 AD* (Oxford University Press, 2007). The figures for the growth of law are mine and are speculative.

This figure shows that since 500 BC relatively not much happened in the growth of population, wealth or law until around 1830 when the volumes of all three took off. This result is consistent with Ian Morris’s figure on human social development just discussed which showed that social development also took off around 1800.

The figure demonstrates a simple progression. It shows that as population increases, so does wealth go up at a greater speed and so does the growth of law at an even greater speed.

**Growth of population** Let us first consider population. Some estimates put world population of human beings at as little as 20,000 in 100,000 BCE. This may be too low but in any event around 8000 BCE the world population was probably around ten million, about the population of today’s Paris. By 1 CE it seems to have been about 250 million, less than present-day Indonesia. In 1830 it was around one billion. It took 100 years to get to two billion (1930), but then just 30 years to reach three billion (1960), half that—17 years—to reach

four billion (1977), 13 years to reach five billion (1990) and the even shorter time of ten years to reach six billion (2000). Now we are over seven billion.

So if one draws a line representing population from 1 CE, nearly all of the line represents population growth since 1830 as shown in the above figure. In other words population was pretty static in gross terms until 1830 when it really took off at a massively accelerating pace. The population line creeps around at the bottom of the chart until this point when it suddenly shoots up almost vertically. **Growth of GDP (wealth)** Around 1830 there was a similar dramatic upward shift in wealth, as measured by GDP.

By 1 CE world GDP in 1990-adjusted US dollars was around \$100 billion, about the GDP of present-day Hungary or New Zealand. Around 1830 it was \$700 billion, broadly equivalent to, say, Australia or South Korea in the mid-2000s. By 1975 it was \$16 trillion (more than 20 times as much) and it more than doubled to over \$37 trillion by 2001. In 2012 it was \$60 trillion.

Again if one draws a line representing GDP growth from 1 CE, as shown in the graph, the GDP would again cling closely to the bottom of the graph until around 1830 when suddenly it lifts off and accelerates upwards.

Per capita GDP in 1 CE worldwide was about \$500, less than that of present-day Burundi, Malawi or Sierra Leone, ie, less than that of the world's poorest countries today. By 1830 it was \$700. By 1975 it was \$4000, \$6000 by 2001 and \$12,000 by 2012. So virtually all the growth has been since 1830.

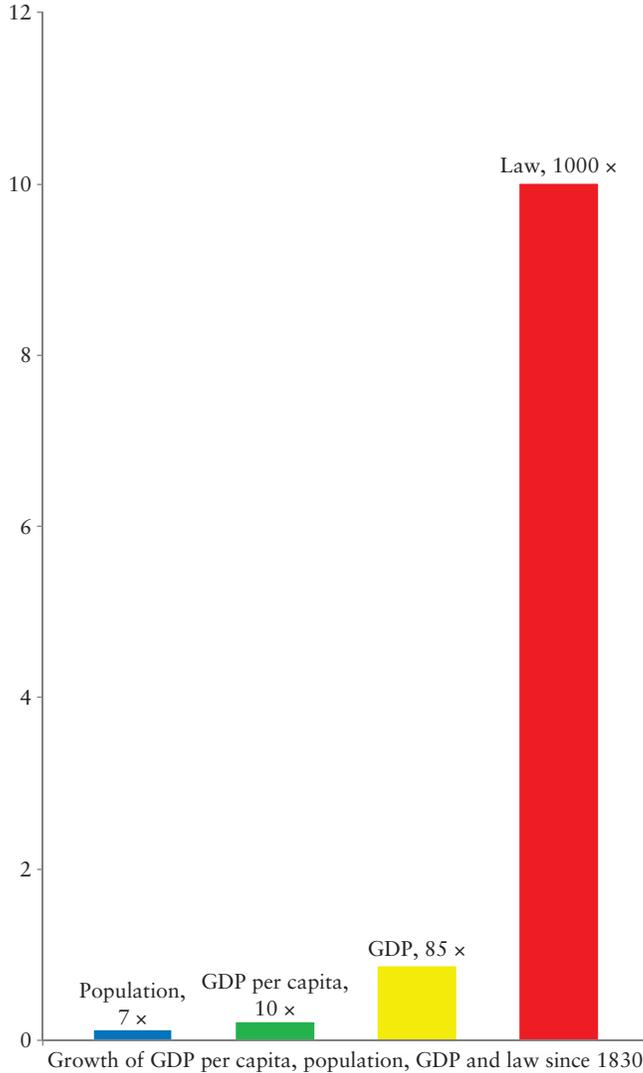
In 1 CE and even by 1830, most people worked on the land. Now usually more than 80 per cent of the population of advanced countries is urban, with the tiny amount of around 1 per cent or 2 per cent engaged in agriculture. Typically in these countries, the contribution of agriculture to GDP is around 1 per cent, of industry around 25 per cent and the remaining 75 per cent comprised of services—banking, insurance, retail, construction, etc.

So what happened is that the sudden spurt in population beginning around 1830 produced a spurt in science and technology as already discussed, or the technology induced a spurt in population—it does not matter which way round it happened.

**Growth of law** The law came of age in the centuries after 1830, almost exactly matching the precocious advances in science and technology. First we need to measure the growth very roughly and then to debate the reasons that this happened and what the implications are.

The figure on the growth of population, wealth and law shows a slight rise in the amount of law at the time of the Greeks and the early Romans; a rise at the time of the first great philosophers or religious leaders, such as Siddhartha Gautama (Buddhism) and Confucius, both of whom died round about 480 BCE; a further rise at the time of Justinian's codification of Roman law (533 CE); a sharper upwards movement at the time of the Renaissance a thousand years later; and then virtually a vertical line upwards from 1830 onwards. The contribution to the law by the Christian bible (about 50 to 100 CE) and by the Koran (about 650 CE) was small.

To get the growth of law into perspective, one has to keep it simple to focus on some simple arithmetical figures, the basic statistics. I do this by showing the previous graph in the form of a bar chart to bring out the huge growth in law.



The bar chart shows very roughly the comparative increase in the size of world population, GDP per capita, GDP of the world and the law, but showing law as growing at the lower estimate of 1000 times since 1830—the actual figure is probably much more.

Since 1830 world population grew seven times. That is, for every one person in 1830 standing next to you in a train or on the elevator, there are now seven people.

Over the same period GDP per capita grew by about ten times, slightly more than population. World GDP grew by 85 times.

How much has the law grown since then? This is extraordinarily difficult to measure but I suggest that the growth of written law in the books since 1830 has been between 1000 and 100,000 times. It probably does not really matter that we cannot be precise, since it is evident that there was a huge surge upwards from the early 19th century onwards.

The line representing growth of law in the bar chart is only tentative and impressionistic. It is based on the fact that back in 500 BCE, the content of law, at least written law, seemed rather small. Hammurabi's code of more than a thousand years earlier in 1772 BCE, which is contained on the 2.25 metre (7.4 feet) stele now in the Louvre in Paris, contains 282 rules of law. Hammurabi was a Babylonian king. The early Romans were reputed to have had Twelve Tables dated about 450 BCE. The laws in Leviticus, in the biblical Old Testament, amount to a few hundred articles—tiny compared with modern legislation.

We can work out the length of the codes of Justinian codifying Roman law around 533 CE and we can measure the barbarian codes of following centuries in the Dark Ages. When a collection of all current laws in Castile was printed at the king's command in 1569, it filled only two volumes, albeit there were 4000 laws. In the next hundred years or so there was a proliferation of local codes in Europe. We can also measure the size of the codes in the early codification movement, starting in France in 1803. We can measure the size of US tax law in the 19th century as against the size of US tax law now. We know that prior to the 19th century, company law hardly existed and there was no such thing as securities or financial regulation, let alone the other fields of regulation which now are monsters on the legal landscape. So it does not seem too unreasonable to estimate that the growth of law is well in excess of a thousand times larger since the early 19th century and could in fact be much, much larger.

Although one must be careful about establishing cause and effect relationships when there is only a correlation, what seems to have happened around 1830 is that, when the population of the world hit the first billion and subsequently accelerated, the increased number of people produced more wealth. Compared with a million people, a billion people think of more things, invent more things, make more things. The result of this prodigious multitude of effort by such a vast number of people produces wealth which is measured by GDP. The money went into banks and capital markets. This wealth in turn was funnelled into corporations by way of investment by share capital, bank loans and bonds. Banks made loans out of the cash deposited with them to finance new businesses. Insurance companies and banks invested in equity share capital and bonds for the new industries of the industrial revolution. Modern corporate law was invented—previously business was conducted through partnerships where the partners were each liable for all the debts of the firms, a risk which was inconceivable for investors in the new businesses who had no day to day control over the management of the business. The rapid expansion of business led to a demand for credit which in turn led to bankruptcies and losses. The reaction

of lawmakers then as now was to rush in new laws to mitigate the devastation wrought by large corporate bankruptcies, including the bankruptcy of banks. Hence the advent in due course of financial and corporate regulation, corporate governance, financial statements and generally a massive increase in the amount and sophistication of law, including basic subjects such as the law of contract and the law of sale. The inventiveness of science was accompanied by the exhilarating ingenuity of the law.

Meanwhile the religious authorities in the Western industrialising countries left it to the secular authorities to mould the new legal regimes which became so important to our welfare and survival. In many cases the intervention of clerics was discouraged. The moral codes of the religions had been settled centuries earlier and the religious authorities saw no reason to change. In effect they handed the baton of moral progress in these new realms to the secular leaders. To them, God had little interest in corporations or banks.

If we were also to plot the amount of the growth of the corpus of all the scientific subjects, from medicine to physics, we would see a growth probably greater than the growth of law by a large margin.

## Predictions for the Future

Since it is to the future that we look, it is worth attempting a prediction, a forecast of what might happen over the short term and what this portends for us. By short term, I mean over the next 15 to 20 years and a little beyond, not next year.

Predictions about the future are extremely unsafe. Nobody can tell exactly what will happen in three months, in one week or even tomorrow with certainty. Economists struggle to make economic predictions beyond three months of general trends, let alone the detail. It is obvious therefore that the predictions made here are bound to be tentative and the real future could be entirely different.

Time future is perhaps contained in time present. Time past forms time present, but the arrow of time changes our perspective of the past. As we travel past a distant mountain range the shadows and the shapes change. As to the future, we live in Plato's cave and can see the future only as a shadow of a present reality.

In 2014 the World Bank predicted that by 2100, world population, now just over seven billion, will grow to between nine billion and twelve billion. The World Bank also predicted that by 2100 the population of Tanzania will be over 300 million (the population of the present-day United States) and the population of Nigeria will be over 700 million.

As to wealth, if we go back a little in the recent past and use the present to suggest a trajectory, we can posit a rough guess of world GDP in 2030. This is shown in the figure 'GDP football fields'.

**GDP FOOTBALL FIELDS (\$10 trillion)**

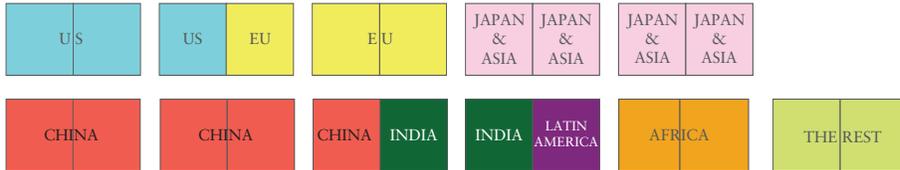
1995



2010



2030



Each oblong is a football field of \$10 trillion

In 1995, as shown in the figure, world GDP was roughly \$30 trillion, ie, three football fields. This was weighted in favour of the United States and Western Europe, mainly as a result of developments in the 19th and 20th centuries for which many explanations have been attempted. From about 1830 the West pulled away from the rest in terms of technology and GDP so that, of the three football fields, by 1995, the United States was one, Europe and its offshoots was the second and the rest of the world was the third football field. Japan and the Asian Tigers occupied half of the third football field and the rest of the world the other half. Africa at that point had only about 3 per cent of world GDP.

The British Empire alone covered roughly one-quarter of the world's land surface (the French Empire about 9 per cent) and about the same proportion of population. The United States overtook Britain economically between 1870 and 1913 as the world's largest economic power. In 1860 Britain was the only thoroughly industrialised economy, producing half the world's iron and textiles. In 1913 11 western empires, including Russia and the United States, controlled nearly three-fifths of the territory of the world and nearly 80 per cent of the world's GDP. Even by 1990 the average American was 73 times richer than the average Chinese.

In 1500 the world's ten biggest cities had nearly all been in the East. Beijing was the biggest and was more than ten times the size of London. In 1900 the biggest cities were nearly all in the West. London was more than four times the size of Tokyo which was then Asia's largest city. In 1950 Western Europe, North America and Australasia had 20 per cent of the world's population. According to the United Nations by 2050 the figure will drop to 10 per cent.

The economic split from 1830 forward is often referred to as the Great Divide.

A further major result of European dominance from at least 1800 onwards was that European imperialism carried the European religion with it—Christianity.

So Christianity, as the religion of the settlers and the conquerors, displaced the customary religions of the indigenous people—in the whole of the Americas, in most of sub-Saharan Africa, in Australia and New Zealand. This massive implantation did not happen in places where the indigenous religion was well developed, such as Islam in North Africa and the Middle East, or Hinduism in India. It did not happen in countries which were not completely colonised such as Japan, Thailand and China, although the strong nationalisms in those countries and other factors contributed to the relative non-reception of Christianity.

At the same time there was another development, a major development in the context of world law, which is what I call the triple polarisation of the law, that is, the division of the world into three great families of law and their offshoots. The triple polarisation is discussed later, but suffice it to say here that the military and technological dominance of the West from the 19th century onwards meant that Western countries colonised almost the entire world and in the process imported their legal systems. In countries which they did not colonise or which became independent, they hugely influenced the legal systems which were copied by modernisers in those countries. The result was that out of the 320 jurisdictions in the world, probably more than 250 are based on a Western legal system.

If we went back a few hundred years, the economic situation would have been in contrast to what it was in 1995 because at one time China had 30 per cent of world GDP, a situation which may well transpire again in the future.

In any event, in around about 2010 there were five or six football fields of ten trillion each with China showing marked advances.

We are locked in the present. For us the present minute, the next few hours, the next day, the next week, the next month, these preoccupy us. The presence of the present deadens us to the future. But it is to the future which we must look. In our planning, we should be looking into a future much, much further away, not just a few decades, not just a few centuries, not just a few millennia.

By 2030, provided there is no terrible disruptive event in the meantime, economists have predicted a world GDP of around 11 or 12 football fields or even more. So things are really looking up in terms of more food, more health, more power stations, more hospitals, and so on for the peoples of the world.

Much of that increase in wealth results from the increase in population. Yet the amount of average personal wealth per person—GDP per capita—is likely to increase too so that the new wealth is spread.

Some futuristic prophesies show much faster growth from technology and science, for example, that if growth continues at the same rate as during the last 50 years, the world will be nearly five times richer by 2050 and 34 times richer by 2100. We would be doubling economic growth in our own lifespan.

In any event, all this extra GDP is not going to go under the mattress in the form of cash. It is going to go into banks, capital markets and funds and in turn be channelled through to corporations.

On the other hand, if three or five football fields can produce the mayhem of recent bank collapses and if they can produce the financial crisis of 2007/2008, surely 12 football fields or even more will produce much more money sloshing

around in banks and capital markets, more competition between nation states, much more interconnectedness of countries, and this will surely produce more risk. A tempestuous future could therefore lie ahead and our ability to cope with that could be crucial.

## Conclusion

We can now pull together some of the themes discussed in this chapter. In the last two centuries there has been a very rapid growth in population, wealth, science and law and these trends look set to continue. We can hope for an increase in international prosperity but there is also a greater risk of dangerous instability and conflict which could stretch the capacities of our moral regimes, once expressed through our religions but now largely expressed through our legal systems. If the experience of the rich West is anything to go by, there may be a greater questioning of the supernatural beliefs of the great religions and hence a greater secularisation of our societies, topics to which we will return. In that event the law would be left as the main bulwark against instability and disruption threatening our societies and calling our survival into question.

We must now embark on an examination of religions and the law to see how they compare.