

CHAPTER ONE

OF SCIENCE AND TEMPERAMENT

Most people say that it is the intellect which makes a great scientist. They are wrong: it is character.

—Albert Einstein

In 2007 the collapse of the U.S. housing market plunged the financial world into crisis. Trillions of dollars had been invested in mortgages with poor security, which was laid bare by the fall in house prices. Many mortgage lenders went bankrupt. Major institutions such as Northern Rock, Bear Stearns and Fannie Mae were taken over or nationalized to prevent a wholesale meltdown of the financial system. Western economies were plunged into recession.

Governments used all the levers that economic theory said would solve the problem. Deposits were guaranteed, economies primed with massive government spending, and interest rates reduced to near zero. Then they sat back and waited for the recovery that must surely come.

Seven years later, for much of the developed world, it has yet to arrive. Growth rates are anaemic or even negative. Unemployment through much of Europe is at catastrophic levels, especially among the young. Government debt has spiralled out of control. Greece is effectively bankrupt and other countries are on the edge, torn between unsupportable debt and the fear that further austerity might cause an outright collapse.

America is doing better, but even here there are ominous signs which long predated the crash. Real wages more than tripled between 1875 and 1975 but have been largely stagnant ever since.² Birth rates have plunged below replacement levels in all Western nations, with the consequent prospect of declining, aging populations. People are losing faith in government. Fewer of them vote, and membership of political parties is at a fraction of its former levels. The gap between rich and poor has grown dramatically, with a hollowing out of middle income earners.

It is not only economic and political indicators that are deteriorating. Obesity levels are rising and drug use is epidemic among the young. Sperm counts and testosterone are falling, and there are ominous signs of a rise in infectious disease.

Parallels can be seen in the history of ancient Rome. In that time there was also a growing gap between rich and poor, with sturdy peasant farmers giving way to vast slave estates owned by wealthy aristocrats. Faith in government collapsed, leading to the end of republican rule. The birth-rate plummeted. The economy went into a long-term decline, from which it never recovered. It is worth noting that these trends occurred in ancient Rome—as in the modern West—after society had begun to cast aside its traditional religious and moral systems, especially those relating to control of sexual behaviour.

Such parallels are only useful to us, of course, if we know *why* the Roman Empire collapsed, because only then can we know whether the same forces are in action today. Biohistory provides a clear answer to this question, and also makes clear that the same thing is happening today and for exactly the same reasons. It also explains why the decline was briefly checked in the late third century AD, and why the Eastern Empire did *not* collapse in the fifth century.

But there is more to biohistory than just the decline of civilizations. It also explains how and why civilizations arise. It casts light on why the Industrial Revolution took off first in northern Europe, and why Japan, uniquely among non-Western nations, was able to swiftly adopt and use the new industrial technologies. It also helps to explain why most of Africa, despite almost a century of aid, remains desperately poor and backward. It takes particular issue with the idea that this might be about race, or genetic differences.

Biohistory proposes that the key to all of this—from the decline of Rome to the Industrial Revolution and the current financial crisis—is temperament. Some countries are wealthier than others because the people in them are harder working, more innovative, more willing to sacrifice present consumption for future benefit, less inclined to corruption as a government official, and so forth.

This is not a moral judgment. Wealthier peoples may also be less generous to friends and family, less indulgent with their children, less spontaneous, and greedier. Nor does it mean that all people in the society fit some

national stereotype. For example, some people in society A may be harder working than many in society B. But if the average citizen of society A is harder working than the average for society B, this may have profound implications for wealth and other characteristics of each.

This is not a unique insight. In his superb book *A Farewell to Alms*, economic historian Greg Clark shows how the temperament of English people changed since the Middle Ages, such as in their working longer hours and being more prepared to sacrifice present consumption for future benefit. One example is the increased price of land relative to rental return, which meant people were prepared to accept a lesser return on their investment. He maintains that this change fully explains the economic explosion of the late eighteenth and early nineteenth centuries.³ He does not provide an explanation for the change, apart from a suggestion that it may be genetic, but his evidence that there *was* such a change is powerful and convincing.

Temperament can also be used to explain political and institutional changes. One of the key distinctions biohistory makes is between “personal” and “impersonal” loyalties. The strength of political leaders ultimately depends on who supports them and to what extent. When loyalties are at their most personal, people will only support a leader they know well. At one extreme this means that political power cannot extend reliably beyond the local village, since a local leader can always prevail over one from the neighbouring village. At most a leader can drive away the enemy and take their women and land, but as a section of the community takes over the vacant territory it becomes politically independent.

As loyalties become more impersonal they can extend to a local baron or tribal leader, who might be seen occasionally but are less well known. The next step is a king, rarely seen but still an identifiable individual. The most impersonal loyalties of all are to the laws and institutions of a republic.

As an illustration, consider the career of Richard Neville, Earl of Warwick in fifteenth-century England. Originally a supporter of King Henry VI, he became the chief supporter of the house of York and helped to put King Edward IV on the throne. Finding his influence curbed by the queen’s family, he switched sides again and helped restore Henry VI, before being defeated and killed in a final battle which brought Edward once more to power. His followers seem to have simply gone along with all these changes, fighting for and against whichever claimant their lord told them

to. Their loyalty was personal and local to their lord, whom they knew, rather than to their king.

To use a modern analogy, if the governor of California tried to depose Barack Obama and make Mitt Romney President he would gain very little support. Even soldiers and policemen who had voted for Romney would most likely ignore or arrest him, because their loyalty to the Constitution would outweigh their support for the man. In fact, in the present political climate such an attempt would be so futile as to be considered evidence of insanity. Six hundred years ago, this was politics as usual.

The same principle of changing temperament can explain the decline of Rome. As will be shown in chapter twelve, there was a clear change in the character of the Roman people during the late Republic and early Empire. As loyalties became more personal the Republic gave way to the Empire, and as they became more personal still the Empire itself collapsed. At the same time, an advanced market economy (which is an impersonal way of exchanging goods) changed to one based on subsistence farming and tributes to local leaders.

More recent events can also be explained in these terms. Saddam Hussein, as ruler of Iraq, was a brutal tyrant. When his health minister merely advised that he step down temporarily to help peace negotiations with Iran, the minister was sacked, arrested and killed, and pieces of his dismembered body delivered to his wife the following day. Saddam's campaigns against rebels and regime opponents involved poison gas, torture, assassination and (according to Human Rights Watch) the estimated loss of 250,000 lives.⁴ Many more died in his abortive invasion of Iran. Many, if not most, Iraqis lived in terror of the regime.

In March 2003, the United States and its allies invaded Iraq, aiming to depose Saddam Hussein and thus bring peace and democracy. More than ten years later, with a trillion dollars spent and countless lives lost, they withdrew without having achieved either goal. The new government proved hardly more democratic than the old one, and was menaced by a brutal new foe in the Islamic State.

The answer to the puzzle of why Iraq did not become a peaceful democracy can be found in a community study done fifty years ago in Egypt, another Arab country with a very similar culture. The people of Egypt tended only to accept authority that was harsh and intimidating,

indicating a fundamentally different temperament to that of people in the democratic nations of the West.

The people thought of authority as necessarily involving an assertion of power and dominance, and could not respect those who did not display these attributes. Writing of the eighteenth century it was observed that, “if the peasants were administered by a compassionate multazin they despised him and his agents, delayed payment of taxes, called him by feminine names ... They still consider both Government and Government officials as agencies of imposition and control, and hence to be feared.”⁵

When people only obey rulers who are brutal and terrifying, it is brutal and terrifying men who make the most effective rulers. More lenient men are ignored or brushed aside. The United States and its allies thought that removing Saddam would turn Iraq into a peaceful democracy. They were wrong, because Saddam’s rule merely reflected the kind of leadership the majority of Iraqis were temperamentally inclined to accept.

The same can be said of nations affected by the Arab Spring in recent years—either ongoing chaos (Libya and Syria) or renewed autocracy (Egypt). Similar patterns occurred after the Russian Revolution of 1917 or the French Revolution of 1789. Ending one autocracy quickly gave rise to another one.

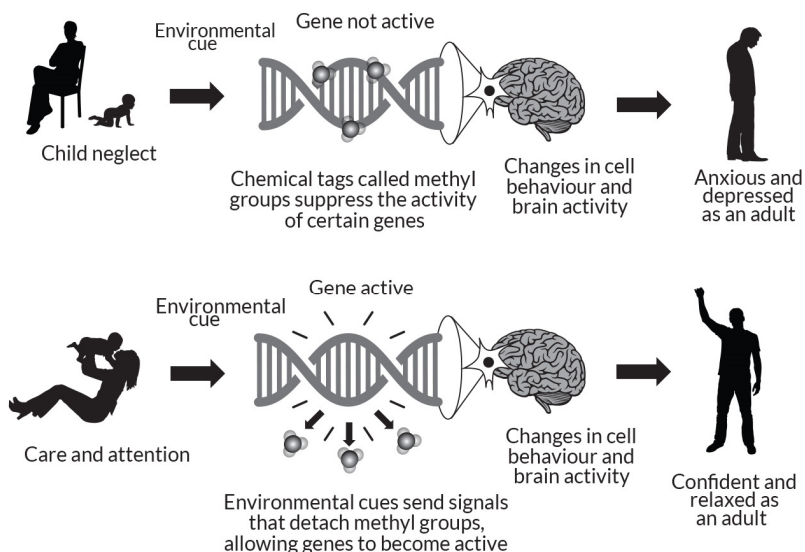
The idea that economic and political systems reflect the prevailing temperament is not conventional wisdom, but it is not original either. What Biohistory introduces is the idea that different temperaments have a *biological* basis and can be understood in terms of hormones, brain physiology and gene expression. It is the study of history, as well as of economics, psychology and anthropology, united by a common strand of evidence in biology. Different temperaments are traced back to the influence of early life, in particular the extent to which parents control or punish their children at different ages. For example, chapter five suggests that the classic Arab temperament stems from extreme indulgence of infants combined with harsh control of older children.

Biohistory takes issue with the idea that differences between peoples can be explained by genetics, such as the idea that Europeans and East Asians are more intelligent.⁶ Even if such a difference could be demonstrated it would be far less important than differences in temperament determined by the environment. Overall, differences between and changes within societies cannot be explained in terms of inheritance. Genetically speaking, human beings are very similar to each other. It is often said that

there is more genetic diversity in chimpanzees from a few hectares of rainforest than in the entire human race.⁷ Genetic differences cannot explain, and are not needed to explain, differences in wealth, creativity, political institutions or much else that matters.

But at another level, people are profoundly different. This is at the level of epigenetics, the new science which looks at the way in which genes are switched on or off by the environment. Thus, two people with similar genes but different early environments can be remarkably different in attitudes and behaviour, as different genes become more or less active. These epigenetic differences can make people more or less hard working, rigidly dogmatic or open to change, peaceful or violent, timid or forceful, honest or corrupt, accepting or rejecting of brutal authority, and much more. An example is given in Fig. 1.1 below.

Fig 1.1 Example of an Epigenetic affect – a simplified overview of epigenetics, development and behaviour.



What is more, these differences tend to pass from generation to generation, partly by direct inheritance but more by the way children are treated in early life. And they have profound effects on the political and economic make-up of societies. If people are epigenetically primed to accept only

the most brutal forms of authority, then governments will tend to be brutal or unstable. When people are epigenetically primed to be innovative, to act with integrity and inclined to work hard, national wealth grows. When men are epigenetically primed to be aggressive and proud, wars break out. Thus it is that biology, more than anything else, determines the nature of society.

Culture, the ideas and practices that define how people should think and behave, has a profound impact, but not in the way most people think. First, culture largely reflects the underlying character of the people. When people are aggressive by nature the culture is warlike. War is glorified, and men are praised and valued for courage and pride. But culture also has an impact on the underlying biology. Practices such as patriarchy, control of sexual behaviour, religious rituals and different ways of rearing children all have epigenetic effects. These in turn cause changes to character, which in turn influence culture in an ongoing cycle. All of the questions given above have answers couched in physiological terms.

To fully understand these answers, which constitute the underlying mechanisms that drive human culture, we must turn to animals. All mammals, including human beings, appear to have an inbuilt mechanism allowing them to rapidly adjust to changes in food availability. This means they can change behaviour within a generation or two to suit environments

with chronically limited food or occasional famines. By a strange quirk of biology, these same behaviours and attitudes are exactly what civilization requires. The story of human cultural evolution can be seen as a process by which societies which managed to trigger this mechanism most effectively, without any idea of what they were doing or why, overcame those which did it less well.

This biological foundation of biohistory provides one major benefit lacking in other social theories—it is *testable*.

The scientific method has been an outstanding success in helping people to understand the world, and to develop technologies and drugs that improve and lengthen our lives. And at the core of the scientific method are two quite simple ideas. The first is that, all things being equal, we prefer the simplest theory to explain the available facts. And second is that a scientific theory should generate non-obvious hypotheses that can be tested, and on that basis the theory is confirmed, modified or refuted.

As an example, Einstein's theory of Relativity predicted that light should be affected by gravity and bent by a specified amount when passing near a massive object such as the sun. This had never been observed, and no competing theory made any such prediction. The trouble is that the sun is so bright that it drowned out light from distant stars. The only way to test the theory was by a total solar eclipse, observed in the right place and with exactly the right weather. Scientists spent many years traipsing around the world in pursuit of just such an event, and eventually made observations. The sun's gravity bent the light of distant stars, and by exactly the amount Einstein predicted. Thus was Relativity confirmed.

For the social sciences this approach has proved difficult, to put it mildly. To take just one example, historians have many different explanations for the Second World War, including the personality of Adolf Hitler, resentment at the Versailles treaty, aspects of German national character, and more. But the only way to absolutely prove any theory would be to run the twentieth century again without one such element (for example, take out Hitler), which is clearly impossible. By contrast, chapter nine explains war in terms of maternal anxiety, and suggests a form of blood testing that could confirm or refute such an idea.

Testing the theory

This is not a "common sense" view, but common sense is not a necessary criterion for a theory to be valid. For example, neither Relativity nor Quantum mechanics are especially plausible theories. Light can be "bent" by gravity? A particle can be in two places at once?

Biohistory is science in that it explains a wide range of data, and it is testable both inside and outside the laboratory. The research program cited earlier is an example of just such testing, as a result of which the theory has been confirmed in some areas and modified in others. It may be noted that Biohistory is the only theory of history ever to have resulted in ten papers (and counting) in high ranked biomedical journals. Each chapter contains an example of proposed tests. It is my hope that researchers will take up the challenge and put biohistory to the test.

In the next chapter we will look at aspects of family and personal behaviour that are associated with large political units and advanced economies. By finding those same characteristics in certain animal populations, and working out their physiological basis, we will begin to

understand the biological foundation of the temperament that underpins civilization.