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## FERTILITY

**Angelo Bertolo**

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# FERTILITY

- Power and Progress

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## FOREWORD

Unusual perspectives are always more interesting than hackneyed and cliched ones. Ever since the days of Malthus, population growth and fertility increases have been regarded as big problems, especially for developing countries. There has been the odd economist like Julian Simon who has questioned this basic proposition. However, that remains the exception rather than the norm. Population increases at a geometric rate, but food production only increases at an arithmetic rate. Malthus' ghost does not die easily, even though Malthus himself revised his rigid position somewhat in subsequent editions of his "Essay".

There ought to be a difference between rabbits and humans. The correlation between demographic transition and economic growth is at best complex. Medical advances, better food distribution and the end of war reduce death rates. That much is obvious. However, birth rates take longer to drop. That much is also obvious. India is a case in point. The 1981 Census showed a drop in birth rates in Kerala and there was continuing debate about what this decline was due to and how this could be replicated in other Indian States. The 1991 Census showed a similar decline in Tamil Nadu and by no stretch of the imagination was this was a replication of the Kerala model. The 2001 Census extended the success to Andhra Pradesh and 2011 is bound to show similar declines in Karnataka. Birth rates are more a function of awareness, female literacy and availability of potable water than of per capita income or family planning programmes and contraceptive methods. In that sense, there is a difference between a contraceptive policy and a population policy.

Any economics textbook on developmental economics will describe

population growth as a major problem for developing economies like India. Ask any economist, what determines output growth and the answer will be land, labour, capital and entrepreneurship. If labour is an input and its marginal product is not zero, presumably labour is not necessarily a bad thing. Why is population then a problem? In addition, entrepreneurship does not function without labour. Nor do technological improvements or productivity increases, estimated as a residual after netting out labour and capital growth estimates in econometric studies. The Malthusian prescription of population being a problem is based on two premises. First, there will be a shortage of land or other exhaustible resources. This proposition has doubtful empirical validity. It fails to anticipate productivity increase, human ingenuity, technological advances and discovery of new resources. Second, much of the population is useless in the sense of producing a zero (perhaps even negative) marginal product. Hence, if one could eliminate some of the population, the denominator in per capita income would decline and with a constant numerator, per capita income would increase. A country with a smaller population would be richer. This proposition has even more doubtful empirical validity. True, the productivity of the population is a function of access to education and health. It is also true that most developing countries have serious governance problems of providing education and health services, which is why the Millennium Development Goals (set for 2015) seem even more distant. Other than education and health, there are also governance problems associated with urban planning and providing physical infrastructure like power, transportation and roads. However, both for physical and social infrastructure, the problem remains one of governance, not of population growth. Population is a bogey.

As was mentioned, population growth in India is slowing down. The present rate is 1.9% per year and is due to slow down to 1.5% in the next ten years, with significant inter-regional variations. This means that the dependency ratio is declining, also because babies born twenty or twenty five years ago are now entering the labour force. If India now aspires to a 8% GDP (gross domestic product) growth rate in the next ten years, anything between 1% and 2% of per capita income growth will be due to this labour component. Somewhat more arguably, in the former Soviet Union, productivity levels have always been low. The perestroika problem of diminishing returns to capital wouldn't have become so significant had it not been for the simultaneous phenomenon of labour input declines.

Professor Angelo Bertolo is not an economist. He is a historian and his

perspective in this monograph is that of a historian, with a very broad canvas. Stated simply, the proposition advanced is the following. Humanity progresses when the birth rate is high. Humanity regresses when the birth rate is low. There is a product life cycle in evolution of civilizations and Professor Bertolo finds a direct correlation between decline and fall and demographic transition. The canvas covered includes Greece, Rome, Great Britain and ancient India and Sumeria and makes for a compelling argument. There is a yet another argument which economists might refer to as the positive externality argument associated with a large population. Here is Professor Bertolo's rhetorical question. "Would India be a great country, a world power, if the population were only one hundred and fifty million with a GNP comparable to Britain's?" The question is rhetorical and indeed, the answer is no. India would not even be India, or China what China is today. Externalities associated with political power transcend economic indicators alone.

This may seem to be a novel idea, as indeed it is. But it is precisely because all interesting ideas are novel that this monograph should be read. There is much in it to think about.

**Bibek Debroy**

## The relationship between birth rates and progress

In this essay my aim is to pursue the theories regarding the physical and mental evolution of mankind from his various anthropological stages: from Lucy to Neanderthal to the present-day *homo sapiens*. My more specific historical competence is in the history of the populations from ancient Greece and Rome to that of the Western world in both medieval and present times. This historical knowledge is not limited to history in the form of battles, wars and treaties; but it extends into linguistic, artistic, philosophic, religious and economic dimensions of our civilization—and of its internal transformations and spiritual evolutions. Unfortunately, my direct knowledge of non-European civilizations is somewhat limited regarding their present situation, their presence in the history of mankind and their physical and spiritual evolution.

Having studied the three-thousand-year course of the history of our ancient and modern western civilization, I have noticed certain human behavioural patterns and models of evolution which can be roughly compared to other civilizations outside of Europe and to the whole physical, somatic and spiritual evolution dealt with by anthropologists from the dawn of civilization to the present. In this essay I will keep in mind modern evolutionary theories, in particular that of the “*cyclical rise and fall of human civilizations*” of the Italian philosopher of history Giambattista Vico (1668-1744), including the evolution of a civilization with its internal formation of social classes. My opinions will be expressed using arguments that may go against or collide with the current conceptions of life in the western world as expressed, for example, by CNN and many institutions regarding population research.

My opinion or stand is the following:

**humanity progresses when the birth rate is high; it does not progress, but regresses, when the birth rate is low, devolving towards its decadence and extinction.**

In this context progress and regression do not mean happiness or sadness respectively, and the range of this phenomenon goes beyond the will of the individual, even beyond the will of those in power who could influence the behaviour of the masses in one way or the other. Today the governments of many countries tend to promote campaigns to limit their birth rates for various

reasons which are often different and in antithesis with one another: the Earth cannot support too great a number of human beings, and the existing societies are unable to contain an excessive growth while at the same time try to program their social structures; in any case the positive economic standard of living obtained is to be maintained and not worsened. In the past (the recent past as well) we have had governments which, on the contrary, promoted demographic campaigns, often with imperialistic ends, as was the case with Fascism in Italy, or simply to survive as some governments are now doing in Europe.

Progress can certainly mean a larger availability of consumer goods—refrigerators, automobiles, social services—but in particular this means growth towards a phase in which a social group, a civilization, or a country earns world fame politically, militarily, culturally and economically, creating arts, sciences, technology and better civil organizations, as well as consumer goods.

On looking at the demographic statistics of Great Britain in the last fifty years with its low demographic growth, and that of India (ex-colony politically subdued to Great Britain until 1947) with its high demographic growth, the acute observer is inclined to ask himself if it is conceivable today that Great Britain, or any other European country, could militarily, economically or even culturally subdue India. If European countries have progressed in a global sense (not just economically), in the last fifty years, India has showed an even greater increase and not only in the economic sense of the word **growth**. India has become a world power. The accurate statistics on the growth rate of these populations suggest some very interesting considerations, beyond those that the authors of the text *British Economic and Social History 1700-1975* (G. P. Hill, fourth edition (1977), Edward Arnold Publishers, 41 Bedford Square, London) are able to understand.

In 1707 England and Scotland had a population of about seven million inhabitants. In 1971 there were more than fifty-three million. In 1695 the estimate was around five and half million. Towards 1780 the growth began to become more rapid than in earlier epochs. In 1801 the population was of 10,500,000, in 1851 it was 20,800,000, in 1901 it was 37,000,000, in 1911 it was 40,830,000, in 1931 it was 44,800,000 and in 1971 the population was 53,874,000 inhabitants. It should be remembered that millions of inhabitants of the British Isles moved to America and to colonies of the once vast British Empire, and that a number by far inferior have been moving from the colonies of this long dismembered Empire to Great Britain in the last

fifty years. Towards 1870 the birth rate starts to decline, with a decrease that becomes more and more accentuated as we near the present day. The birth rate was 3.63% in 1876 and 2.5% in 1911. The population continued to increase because the mortality rate decreased.

At the end of the 18th and early 19th centuries, contrary to the rest of the country, the areas near Birmingham and Manchester (centres of the Industrial Revolution) grow demographically; and that in the same period the increased production of foodstuffs and also the improvement of medical science contributed to this demographic increase: this is an interesting phenomenon that I consider almost secondary, although I must consider it in order to analyse the contemporary world. Another phenomenon which is interesting, although only secondary in importance, is urbanisation. A developing civilization manifests itself mainly, and above all, in its cities. The people who live in the country or in the farming districts move to the cities, thus increasing their population, and contributing to the economic and cultural development of the same cities which were already developing human environments. The phenomenon of emigration is similar to this: in the last two centuries the poorer European populations have found fortune by emigrating to the Americas and to the United States in particular. They found employment, they integrated into a new society which had already created organized civil institutions and which was a developing country. The coming of these new populations did not limit itself to increasing the population of the Americas but also enhanced this development.

The text under examination supplies us with other interesting details and the author asks himself the reason for this demographic revolution. Of the many general motivations suggested regarding this phenomenon in this text, the same author states that few are convincing. This is not a typically British phenomenon because much the same thing has occurred in other countries with more or less similar characteristics. The change of climate and geography can be some of the factors—an induced phenomenon. Mysterious biological forces changed their virulence in epidemics; there can always be something biologically innate in the mutation of a growth rate in the population, and a period of stagnation can be followed by a livelier one. The author of the text underlines the fact that from 1750 to 1850 the real birth rate had increased, not only the number of adult living persons; and that later it progressively decreased until it reached a very low rate, a characteristic not limited to England alone but to all European countries, with some slight variations.

A general observation, which may be considered trivial, is that after a period of five hundred years in which England progressively organized itself into a modern state with its avant garde institutions, the 17th and 18th centuries are the moment in which it begins to affirm its supremacy by setting up colonies, by imposing its dominion on other peoples and thus building its Empire. It is the advent of the Industrial Revolution. A new social class is emerging: individuals from the lower classes are distinguishing themselves thanks to their human talents of intelligence and initiative. The men who invent and perfect the new machines in the factories and those who show a new spirit of enterprise belong to the lower, more humble classes. These men distinguish themselves from the others of the same class who remain humble and start asserting themselves only at a later date in history when the general tendency will be that of equality for all men. At first this equality is merely economic and obtained mainly by the intervention of the Labour party -- which is itself an institution produced by this tendency. The formation of this new social class with the Industrial Revolution and with this English dash towards colonization and the conquest of an Empire indicates a great period of progress of the English. This Anglo-Saxon progress is global, including military, political and economic progress, but more importantly, in this process of growth I think it important to underline progress in the form of the genius of the individuals who distinguished themselves in various fields of human activity. The text *British Economic and Social History, 1700-1975* states that after 1870 the birth rate has been decreasing slowly up to the present day. The parallel between the decreased birth rate and the decreased political and cultural prestige of England from the last century to present is immediately evident with the loss of its Empire and its scarce importance on the global stage. Despite the apparent splendour of the Victorian Age, historians assert that in 1837, the year in which Queen Victoria ascends to the throne of Great Britain, England had a greater political weight in the political spectrum of the world than it did in 1901, the year of her death. The contrary is true for India and other developing countries which have shown a high birth rate.

This consideration should be analysed with greater attention on the whole history of England in a European context from its Germanic tribes and their arrival to the British Isles and the formation of social classes: from Feudalism to the slow rise of the middle classes in the period that follows and finally the greater social equality of contemporary history. At this point it would be more opportune to state other, more general, examples of these phases of progress in other contexts in the history of the western world.

The birth rate of the Germanic tribes that invaded the Roman Empire after the 4th century A.D. was very high; in the end those same barbaric Germanic tribes imposed their dominion on the territories of this Empire, the same Empire which had earlier subdued and oppressed them. In his *Historia Longobardorum*, Paolo Diacono notes that the Longobard (Lombard) women had many children and that they showed a sense of superiority and contempt towards Roman women who were less prolific than they were. When they arrived in Italy in 558, their whole population was composed of 250,000 people—not very numerous if one considers the number of people in the territories that they were going to invade.

During the Republican era, which was the beginning of a period of demographic growth and conquest of the world, the birth rate of the Romans was very high. Roman women showed the same sense of moral superiority towards Etruscan women that the Longobard women would have shown centuries later: they were proud of their numerous offspring, they had confidence in their republic and contempt for the luxuries often associated with corruption.

The 19th century is the epoch of the United States, with its conquest of the West and period of enormous progress in all fields of human activity. It was natural for the pioneer's wife to have numerous offspring; today it is less normal for the American family to have many children, and far less normal for the European family. It was difficult to raise a numerous family in the Far West with its bad living conditions, but this shows that children are not born only when the economic conditions of a family allow this: it is a natural primordial need that goes beyond the will of the couple or government. It is a sense of confidence in life on this earth, and eventually also in a religious dimension. This was a period of great expansion. Another consideration that could seem trivial, but is not, is that of the political and cultural weight of the United States today with its low birth rate and that of Russia (another Western country) with its relatively low birth rate if compared to its rate at the end of the Second World War. An alarming point emerges: despite all the possible implications that must be taken into consideration, neither the United States nor Russia were able to militarily subdue Vietnam or Afghanistan respectively, the latter countries having a high demographic growth.

The same evolutionary pattern can be seen in the history of ancient Greece, during a period of more than a millenium, with numerous internal periods that can complicate one's understanding of this particular phenomenon, as

is the case for all of modern western civilization. The more ancient periods were ones of growth and development, accompanied by an expansion which was not only political and economic: these were periods characterized by the manifestation of Hellenic genius as well. In later periods of Roman conquest, there is the stagnation of Greek genius which is not as prominent as it was before, although in this period Greece maintains a high level of civilization which would later influence the whole ancient world in a positive way.

In Italy after the year 1000 A.D. and after centuries of decadence and ruin caused by barbaric invasions, there is a phase of exuberant growth: the civilization of the city-republics called **Comune** and of the maritime republics with their economic and spiritual explosion. The city-republics of Tuscany (the most famous of which is Dante Alighieri's medieval Florence) and those of the Po valley are preceded by (and continue contributing to) a conspicuous demographic growth. The scholar Villani, a contemporary of Dante, writes that in less than a century Florence's population soared from 9,000 to 100,000 inhabitants. At the end of the last century the Russian scientist Mendeleev stated that if the high birth rate of Russia would remain so high for a long period of time, by the end of the 20th century Russia would have had between seven or eight hundred million inhabitants. The birth rate has obviously fallen since the end of the last century, and Russia has had some frightening calamities that have hindered her growth rate from reaching the number predicted by this scientist. We cannot, however, deny that Russia has become one of the most powerful and prestigious countries in the world since the end of the last century. Hélène Carrère D'Encausse, in many French and American publications before 1980, states that in the Asiatic republics of the Soviet Union—usually Muslin republics—there is a high birth rate if compared to Russia, the same is true about other eastern Soviet republics. Despite the fact that these republics had a greater availability of consumer goods and foodstuffs if compared to Russia, this Franco-Russian author predicted the decadence and fall of this Empire to the advantage of these Asian provinces. It is surprising that nobody in America (where she has had her works published), as far as I know, has ever mentioned her name or quoted her works after the fall of the Soviet Union.

Therefore, a civilization or a new phase of a civilization begins with a biological need for a demographic growth in the form of an elevated birth rate. However, the opposite is true when a civilization has manifested itself during a rather long period of time: its birth rate decreases to the point where there

is the loss of the vital impetus necessary for the continuity of a great civilization and the near disappearance or extinction of that same population. I believe that this theory goes beyond all other moral considerations. Another consideration to be made, which is closely linked to the phenomenon of an increased birth rate, is that in a social group whose growth rate is increasing, its sense of morality and religion is strengthened. Without linking this phenomenon to the birth rate as I have done, Vico would have stated that at a certain point in their evolution men create religions together with, or even before, creating a language, poetry or the civil institutions which characterize a primitive and barbaric humanity.

The Germanic tribes show a high birth rate before and during their migrations which in the Western world are called **barbaric invasions**. The Vikings who moved away from Scandinavia and the Arabs who expanded their presence in the Mediterranean show much the same characteristics. In the periods of expansion the Vikings, the Slavonic and Germanic peoples on one hand and the Arabs on the other can be considered civilizations at a different stage of internal evolution; but when they are in expansion they all demonstrate the same singular pattern of high birth rates. In fact, two thousand years before the expansion of the above-mentioned peoples, the Indo-European peoples had already begun migrating from northern India and Pamir towards the west, towards our Europe. The success in the following four thousand years of history, in some Middle-East populations, in ancient Greece and Rome and in modern Western Civilization, occurred in direct relation to their demographic growth, even in their eventual division in numerous nations which originated from only one ancient family. Some of these Indo-European nations were less fortunate. But it seems that the genius of a nation occurs in a dynamic evolving environment where there is also demographic growth.

Furthermore, a consideration which may seem the most trivial of all is that in this last century we have reached a very high level of social, scientific and economic progress that has no precedents in past epochs and that the world population today is more numerous than in past epochs. Even if we consider our history from 3000 B.C., during the formation of the first great Empires in Egypt and in the near east, we notice how progress in general is parallel to the growth of a nation in a particular geographical area. I believe those long periods preceding the above mentioned era should be defined as the biological evolution of the human species, rather than the evolution of a civilization. Those groups of human beings that do not sufficiently reproduce and do not, therefore, increase their presence on the Earth are destined to

extinguish or disappear much in the same way other biological species do. It seems that the Neanderthals were a race of men that lived with other families of men who were more evolved biologically, in the end they ceased to exist much in the same way the branch of a family extinguishes. In time some groups are absorbed by other more vigorous groups. This is the case when a civilization reaches the last phase of its evolution and loses its vital impetus. The nations of a decadent Roman Empire are subdued by barbarians whose blood mingles with theirs, thus combining barbaric vigour with a superior culture and spiritual heredity which become the foundations of our modern Western Civilization.

The mortality rate must not be neglected. In the history of mankind there have been serious natural calamities like the pest, which in very little time decreased the world's population by a third, a half or maybe even more. If an epidemic kills a whole nation or even too big a part of it, we can no longer speak of progress with regards to this nation because death has erased life. These types of cases have occurred in the history of mankind. In the jungles of Central America and in south east Asia there are ruins of cities whose existence seemed to have stopped suddenly and without an apparent reason: could an epidemic have killed all their inhabitants? In the case of the 14th century pest in Europe, an epoch of great progress and evolution towards a Renaissance civilization, at least half the population survived, allowing it to continue its course towards greater progress.

A civilization develops in a period of time that is rather long, for Ancient Greece and the modern Western world this means at least ten centuries. Vico is the first to discuss **principles of ideal eternal history, in which all nations evolve in time with their rise, progress, states, decadence and fall.** In these **principles of ideal eternal history** I think that the pattern variation in the birth rate of a civilization should be included. Vico has paved the way towards a better understanding of the history of mankind organized in societies that evolve. His vision is modern, rational and almost materialistic, a vision in which man operates and suffers and questions himself on man's existence on this earth, finding an answer to his doubts in the Christian concept of Providence which operates inside and above the history of mankind.

The great parable of Greek and Roman civilization takes place according to the models we have mentioned but also in phases of lesser dimensions inside this parable. This is also true of modern Western Civilization, as we can see in the evolution of the social classes in England from William the Conqueror to the present day. The same phenomenon occurs in other

historical contexts: in Italy, in Russia, in Athens during the era of Pericles, throughout Roman history from the Republic to the Empire, but the case of England seems more paradigmatic, more linear in its evolution.

In 1066 William of Normandy becomes William the Conqueror with his defeat of the Anglo-Saxons in the Battle of Hastings and gives his barons land in exchange for their services in this battle. His army is composed of about five thousand men and is a hierarchy composed of the king, barons and soldiers. The barons are soldiers that tower over the other soldiers because of their human value, and are recompensed with the distribution of the land and castles to a greater extent than are the mere soldiers and common people belonging to that same nation. William himself had demonstrated his value and political ability imposing his rule on Normans and Anglo-Saxons alike, guiding them intelligently and establishing an absolute monarchy: a monarchy that could be compared to the feudal-type monarchies of the Homeric heroes. This type of feudal society was characterized by the presence of a king and feudal lords on one hand and by the oppressed common people in a subordinate position on the other. In another essay, *From Feudalism to Socialism*, I tried to show, step by step, how from an absolute monarchy the political institutions in England have had a tendency to evolve slowly and become more and more democratic. In the same context at the end of the cycle there is also the opposite tendency of centralizing power in the hands of political parties or governments who want to control economic initiative and the life of a nation itself. This essay does not limit itself to considering the relationship between birth rate and progress but also considers the evolution of social classes in England. This is a necessity as well, a primordial need that appears in all evolving civilizations. In the same way the physical and intellectual strength of the barons which at first was immense, with the passing of the centuries diminishes in their descendants although they enjoy the same privileges, and the same social prominence over those who they subdue. At the same time and from the same common people there are those who distinguish themselves for their merits, not necessarily the military merits of the first barons: the merchant class or bourgeoisie become richer and richer and begin having political importance. After the **Magna Carta** (1215) when the barons reunited in an attempt to control and limit the power of the absolute monarchy, in 1295 the commons (that is, the rich merchants who are not of noble lineage) unite in an assembly with the barons in the famous **Model Parliament**, and in 1341 the merchant class alone unites in the House of Commons: they are gradually destined to obtain more and more



political power at the expense of nobles and barons who will lose almost all their political power at the turn of this century.

As far as political power is concerned the monarchy had lost a considerable amount with the Glorious Revolution of 1688 and in the next century. In the 16th century the Tudor kings favoured the middle classes rather than the nobility, and in the following century the political power belongs to the middle class. The 18th century is the triumph of the middle class. The lower classes, and the proletariat in particular, begin to make themselves heard and will have a political voice at a later date and after conflicts with the middle class. Throughout the history of England this slow evolution and tendency towards social and political equality among all men is perceivable, but becomes evident only with the Industrial Revolution. The bourgeoisie itself is subdivided into the upper middle class and the petite bourgeoisie, all common people who are a little more or a little less distinguished than the others until they obtain the ideal of equality for all men. It should be observed that every time a social class prepares to emerge, individuals of this class distinguish themselves from the others for some natural quality or merit; and this class shows a lively demographic increase. A social class in decline shows the opposite. In the case of the evolution from the Feudal class to the bourgeoisie to the proletarian class, these characteristics are not always so evident because of internal and induced phenomenon, whereas they appear very clearly when two civilizations are compared. In the 18th century, before the French Revolution, the distance between the social classes was more prominent in France than in England because of different political events, although we can consider it a parallel evolution. Both in France and England noble families are less prolific than the middle classes and the third class in general, and numerous documents show that noble families were not very concerned with the education of their offspring.

Another characteristic of a developing civilization or of an emerging social class together with a high birth rate is that strengthened moral and religious sense (not in the sense of orthodoxy) and a great degree of self-confidence. The crusaders were part of the nobility that were distinguishing themselves from other European social classes, and Europe in general was giving signs of a new vitality with respect to other nations which were more culturally evolved. The English Puritans had irrational moral and religious stands yet they are the emerging middle classes, the Pilgrim Fathers of America and the founders of the Industrial Revolution in England. In north-east Italy at the end of the last century and in the first half of the 20th century the

families of farmers were numerous and had a morally sound background. This lower social class with its tenacity and industriousness proved to be the foundation of the social and economic transformation of our epoch: progress and wellbeing.

In all three of these different social classes and European settings, families appear prolific, demonstrating trust in life and self-confidence and a high standard of moral behaviour that seems to decline in successive epochs. With the decline of a social class we have the decline of its birth rate, of its trust in life and manners and behaviour become more and more licentious. As far as the birth rate is concerned, besides the demographic decrease due to natural causes, to an innate need that manifests itself in a certain moment in history, we must keep in mind the induced phenomenon that can mislead one's understanding: the population could have increased due to better eating habits and food, better medical knowledge, in the same way it could have decreased due to birth control or medicine used to decrease births. At this point a moral consideration should be made: if we consider abortion a homicide at a personal level, it becomes a suicide at the social level or for a civilization as a whole. A country that promotes a campaign to limit births is as if it voluntarily wants to limit the development of the next generation in the sense of political predominance as well. It is as if it has lost confidence in life on this earth as well as in a religious dimension of an after life.

However, the problem of population and birth rate in the world remains a problem which is not completely understood and hence not resolved. The aim of this essay is not that of being a personal stand against birth control, as it may seem at a first glance, but that of illuminating the reader on this serious problem with different reasonings, this may be countercurrent, against the common opinion of politicians and men in general who neither have faith in life on Earth nor believe in a transcendent dimension of life. This essay goes against the views and theories of many American universities, against the concept of life that becomes ideology or idol to be adored and believed in, as was the case not long ago with Fascism or Socialism. An ideology that becomes an idol is a human creation rather like the arts and sciences: an ideology in which men believe.

One last point to make linked to growth, evolution and birth rate is that science and technology are made by man in an advanced phase of his evolution, a little before his last phase and of his inevitable devolution. In the case of a war of supremacy of one nation over another, it may occur

that a nation surpasses another that possesses superior technology. In the case of the Romans, their technology was by far superior to that of the Germanic tribes who invaded them, not only regarding their civil works but also their armies and military skills, yet these barbarians occupied their Empire and subdued them. It must be remembered that these barbarians were open-minded and adopted some of the technological innovations of the superior Roman civilization, if not all of the spiritual inheritance of Roman civilization. Birth rate has already been discussed. In the era of the Persian wars, the Persians were heirs of a great civilization with a technology that was superior to that of the Greeks, yet the Greeks were in an evolutionary phase of expansion just before the age of Pericles and they conquered the Persians at Maratona and at Salamina, and then in the whole Persian Empire with the conquest of Alexander.

The Romans overtake the Etruscans first and Greece later towards 150 B.C., making the superior civilization of these nations their own. In both cases the Romans were in an initial phase of expansion with a high birth rate, and imbued with contempt towards the Etruscans and Greeks for their immorality.

With an inferior technology, yet ready to assimilate all that they can from the West even at the expense of many human lives, Vietnam and Afghanistan have brilliantly resisted American and Russian pressure. Arabs and Iranians, with inferior technology, with a very high—although irrational—moral sense stand up to America and the Western world in general. Khomeini showed contempt for the women of Paris and Western women in general, in a way which seems totally irrational to the Westerner. Iran and the Arab countries are more important on the world scene today than they were one or two generations ago, when their territories were subdued by European powers. The Puritans in England and America had an irrational behaviour as well but they were an emerging class that showed genius together with their irrationality, a genius that would allow their prevalence as nations.

Despite their inferior technology, and taking into consideration the help they had from Western countries, the Russians overtook the Germans in the Second World War. It may occur that a nation is defeated by another and that it is erased from the face of the Earth, when the differences are too evident, or that they are particularly unlucky. A nation can disappear because of natural causes—rather in the same way that the single individual cannot mature and grow simply because he dies at an early age.

When I study the history of past centuries, or when we discuss the current

political situation of my country or of the contemporary world in general, although I consider economic, political and cultural factors, I also take into consideration the birth rate of a particular nation with anthropological intentions rather than moral ones. It sometimes happens that I am able to give a more or less correct hypothesis on what will happen in the near future, which was the case when I anticipated the transformation of Russia from a dictatorship to a nation with more democratic forms of government and with less political prestige. This was done simply by analysing the models of evolution of English and French political institutions, comparing them to the institutions present in Russian history and keeping in mind the variable birth rate factor in all these countries. If I were to search for a person of genius in the history of a nation, I would know where to look: if he were a poet or the founder of a religious institution I would look for him in a primitive period or the beginning of a civilization, in one of its internal phases or in a simple social class. If I were to search for a world-famous scientist or simply an intelligent factory worker that builds or perfects a new machine, I would look for him in a more mature or less primitive environment or setting. My search would be like that of the geologist who looks for diamonds (or oil) in particular environments according to his knowledge of the Earth and the intuition of a thinking being.

## Paradoxes

During my recent visit to India I had the opportunity to read an interesting article on population problems of a particular kind: **Fertility is Power: Mother of all Paradoxes**, *Outkook*, March 8, 1999.

I like the term **Paradoxes** on the very title: according to its Greek etymology it means *beyond the opinion, conflicting with expectation, a seemingly contradictory statement that may nonetheless be true*. I may add, against the general opinion we have on the topic of birth rates, of fertility, against the commonly accepted ideology in the Western countries as well as in developing countries in the world. The information from this article and the comments as a paradox are supportive of the notion that a high birth rate has a close relationship with progress in a wider sense, political progress first of all. My notion, however, includes the fact that creativity, that the genius of a people, of a civilisation, of an emerging social class within a civilisation, shows itself in the biological phase of a high birth rate, of fertility; and that it wanes in the other phase of low fertility up to the very death of that civilisation: maybe in a time that can be somewhat delayed from the climax of fertility, but clearly related to it.

Summarizing, the article states that in the most prosperous states in the south of India: Kerala, Tamil Nadu, but also Karnataka and Andhra Pradesh, the birth-rate is lower than in the northern ones: Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan. The southern states are also more literate, and the campaigns in favour of family planning are more effective than in the north.

The problem arises from the fact that the distribution of the seats of the Parliament in Delhi is in proportion to the population of the particular states; and if the population grows in the North, where the control of the population growth is less effective than in the richer and more literate south, then in the near future the North will have more seats in Parliament, that is more political power. They are thinking of amending the Indian Constitution in order not to allow the South to lose today's proportion of representation, and political power. *"What is the point of curbing our family size if it is going to deprive us of political power? A situation that ... would have serious implications on India's crucial family planning programme."*

This may be the paradox of the ideology of family planning programmes.

Another important and well known publication in India, **Manorama**,

**Yearbook 1999**, among other statistical data publishes an article (pag.460): **Religious Communities, Population by Religion, 1961 – 1991**. Although the actual numbers change due to the general growth of the population, the percentage of the people adhering to the single religions shows something interesting to note. The Christians and the Jains from 2.4 % and 0.5 % in 1961 drop to 2.3 % and 0.4 % respectively. The Muslims from 10.7 % increase to 11.7 %; the Sikh and the Buddhists from 1.8 % and 0.7 % to 2.0 % and 0.8 % respectively. The Hindus from 83.5 % drop to 82.4 %. Apart from the overwhelming and complex Hindu majority, the more educated Christians and Jains lose numbers and power in front of the less educated Muslims and Sikhs. Paradoxes of education, of family planning, and of general population problems.

This does not put an end to the comprehension of population problems according to the growth and the birth-rates. Much less to solve these problems. But at least it may shed some light in trying to better understand, against the too rational and materialistic ideology of the modern times. There were no such problems just a few centuries ago when we thought that the earth was large enough for all the peoples to expand. When dealing with populations, with human beings, with even a single man, there is always something we cannot grasp in full with our pure materialistic notions. We must question ourselves at least about the very reason of our being on this limited earth.

Another interesting observation on the population of India. Indian magazines but also American media such as *Time* and *Newsweek* report some statistical projections on the economy: by the year 2010 the GNP of India should reach and equal the GNP of England France and Italy, if the current growth is steady and if there is no crisis such as the recent one in the south east of Asia, or if no major political problems occur. However, they say that the wealth of the nation, of India, is being produced by only a percentage of the whole population, say by one hundred or one hundred fifty million people – the most active part of the population, while the others contribute little and are only a burden which causes problems. A comment: would India be a great country, a world power, if the population were only one hundred and fifty million with a GNP comparable to Britain's?

The same can be said for China. They anticipate that by the year 2020 the per capita income of the Chinese should reach the level of South Korea if the actual economic trends are kept constant with no major setbacks, which is always possible. In the meantime South Korea and the other countries

would go on and progress on their own, of course. In this case the GNP of China would simply be almost the double of the GNP of the USA today. The consequences would be great – greater than the consequences on a world wide scale caused by the restructuring of the Soviet Union after 1989. Consequences that affect a civilisation, not only an era. The West, and Europe in particular, would shy away and feel weak, like a single old person that retires in good order in front of aggressive younger people and prepares to die, leaving the world to others, to other people of a different family.

There are six billion people in the world today, and we are worried that the food supply is not sufficient for everybody. Still there seems to be more food today for every single person even in the poorest countries than a generation ago, or one century ago. This is not to deny that there is a problem, this is only to notice the paradox: there is more food, there has been progress in the world even with an exploding population.

By 1800, two centuries ago, Thomas Malthus was worried about the growth of the population, in the very middle of the industrial revolution in England. The conditions of the lower classes, of the workers in the factories, of the so called proletariat, remind us of the conditions of the poor in India. But his worries were the very same as the worries today in times of economic expansion, and nationalism, in Asia. Yet the world population at that time was under one billion.

The Germanic tribes that were leaving their regions to invade the territories of the Roman Empire in the fifth and sixth centuries AD, in addition to other causes, were leaving their regions because the forests were depleted, there were too many people in the regions of northern Europe. The land could not sustain them.

If you are a doctor, a nurse, a man or a woman of good will concerned with the life and wellbeing of your family on this earth; if you are a person concerned with the economic and social problems of your own country even on political and patriotic grounds, and of all peoples in the world — do what you think, do what your intelligence and your conscience suggest regarding the problems that high fertility could cause in your environment — whether or not you still consider valid the commandment not to kill. But consider also all the paradoxes that derive from historical experience, from different human experience, from these considerations on population problems. And question also the reason for the presence of man on this earth. On religious terms there is the end of the world, and man has always

had an aspiration to a world without end. Simply on biological terms, we have experience of numerous biological species that evolved and disappeared from the face of the earth. There is more than a possibility in scientific terms that the species of homo sapiens disappears also; or that many populations disappear leaving space for other populations to live on.

It is commonly said that population started to grow enormously when agriculture was invented. This happened independently in several parts of the world and at different historical times: in the Near East and Egypt first but also in the Indus Valley, in South East Asia, in northern China, in north-eastern America, in Meso America and South America. It is also said that wheat and barley, the first important crops, could be easily cultivated in Europe, in the Near East, while this is not true for the region south of the Sahara: this would be the reason why one does not see a similar pattern of agricultural or population explosion into this area in neolithic times: I do not agree with this last statement as the reason for me lies rather with the very fact of the evolution and maturation of a people, of a civilisation, more than with the environmental conditions which could also be very important; and also in the longer times of the evolution of man, in the growing capacity of the human skull to contain the brain, in the capacity of man to think in abstract, to understand mathematics and create technology. If the invention of agriculture allowed more people to be fed, if it contributed to the growth in the number of these people, let us put it the other way – at least tentatively: the progress of mankind was basically created just in a phase of growing population of a particular group of people. The agricultural advance, which is the creation of new technology in this particular moment of human history, in turn permitted a growth of the population as a side effect, an induced phenomenon. Not even Prof. Luigi Luca Cavalli Sforza with his otherwise brilliant studies in anthropology and population problems seems to be aware of this particular aspect of civilisations.

There is plenty of circumstantial evidence to support the thesis that it was the evolution and the maturation of a civilisation to create organised agriculture, and progress in the broader sense, in the Middle East, in Ancient Mesopotamia, in the Sumerian Civilisation. The Sumerian civilisation lasted some thirteen hundred years (roughly from 3300 to 2000 BC), the same length of time as Western civilisation from the barbaric invasions of our Middle Ages to the present day, the same as the Roman and Greek civilisations.

Scholars are still divided about when the Sumerians – that is those who spoke the language later called Sumerian – arrived in the area: they may have been there since about 4000 BC. But since we know the population of civilised Sumerians to be a mixture of races, perhaps including the earlier inhabitants of the region, with a culture which mixed foreign and local elements, this is not important for this kind of research. But only in this relatively small area in the region where the rivers Tigris and Euphrates meet did a pattern of village life common to much of the Near East begin to grow faster and harden into something else. From that background emerges the first true urbanism, a better organised society, that of Sumer, and the first observable civilisation.

Together with the invention of agriculture, with the construction of canals for irrigation there was the invention of writing. Both inventions were progressively improved and perfected. From the general information at my disposal in history books and anthropologic essays, I have the impression that these people gathered technical and scientific information from other older civilisations in the area and re-elaborated them. This is a pattern of the phenomenon of transculturalisation. They perfected them and added something new – which is the legacy of their genius. But this part came in a later period of their history, in a later phase of the evolution of their civilisation, in a period when they were more rational, before they were annexed and assimilated into other new civilisations, mainly Semitic peoples but also Indo-Europeans. They used cuneiform writing for practical uses, for communication, for consultation of records. It strengthened government organisation and made the exploitation of resources more efficient. Writing, organised agriculture and the observation of the stars reflect more a rational and scientific attitude rather than an emotional and poetic or religious one. When their civilisation was about to wane and pass its legacy to younger and more aggressive civilisations, transculturalisation – a message from one civilisation to another, the legacy of the human conquests to be passed to and used by another civilisation — showed an interesting pattern which would repeat itself dramatically in other epochs and with other civilisations in different times, including our very present epoch. Writing and the language on one part and the knowledge of the stars on the other became more emotional: the basis for religious beliefs, for epic poems, for the creation of myths and of great poetry. Science and technology are culture, like poetry in preceding epochs. Both are things created by man. Modern science and technology have been created mainly by Europeans, by Westerners. (Let us forget for the moment, for this kind of research, the enormous

contributions that other civilisations brought to science and technology and that were passed on to the West, to Europe – the very same phenomenon of transculturalisation in other times and in another direction.) The Japanese, the Indians, the Chinese, in contact with the Westerners, absorb this kind of culture – modern science and technology, they make it their own, they may even go beyond and surpass the whole Western Civilisation in the near future, both in science and technology on one part and political prestige and supremacy on the other. To note also that these Asian peoples, independently from one another, were in that phase of their maturation that they were ready to pick up the legacy of the European civilisation. Or also, the West may even wane and almost disappear from the face of the earth because of the low birth rates and the loss of their vital driving force.

Much that is known of the Upper Palaeolithic confirms the sense that the crucial genetic changes are behind and that the evolution is now a mental and social phenomenon. The distribution of major racial divisions in the world which last down to early modern times is already broadly fixed by the end of the Upper Palaeolithic. Geographical and climatic divisions had produced specialisations within Homo Sapiens in skin pigment, hair characteristics, the shape of the skull and the bone structure of the face. In the earliest Chinese relics of Homo Sapiens the Mongoloid characteristics are discernible. All the main racial groups are established by 10,000 BC, broadly speaking in the areas they dominated until the resettlements of the Indo-Europeans which was one aspect of the rise of the European civilisation to world domination after 1500 AD. The Upper Palaeolithic world was still a very empty place by modern standards. Calculations suggest that twenty thousand humans lived in France in Neanderthal times, possibly fifty thousand years ago. There were perhaps ten million humans in the whole world, living mainly by hunting and gathering. Cultural changes and progress were necessarily slow. Although there is still much unknown about the groups that lived in Upper Palaeolithic times in southern France and in central Europe in general — those who made the magnificent cave paintings, there are two important things to notice: they were both larger in size than in former times, and also more settled and organized. Second, there was a sudden end for this civilisation. The impression left by the violence of the contrasts between what was before and what came after produces a sense of shock. So relatively sudden an extinction is a mystery. We have no precise dates or even precise sequences. Nothing ended in one year or another: there was only a gradual closing down of artistic activity over a long time which seems in the end to have been absolute. Some scholars have blamed

climate and changing environment.

The changing of the environment must always and in any case be taken into consideration. But let us put it again in another perspective. Civilisations rise and fall according to rather precise patterns of evolution, including high and low birth rates, with the final disappearance of a civilisation. There are many other examples of civilisations which rose and fell by themselves almost following an internal biological need of growing to preponderance and of waning in the end. There are civilisations of which we know everything, and other civilisations of which we know very little, or nothing at all. Archaeologists in recent years have been of great help in understanding civilisations which were unknown, or adding information and knowledge to civilisations we already know. Anthropologists are helpful too.

As a humanist with a cultural formation in the field of languages, of history, of philosophy of history, interested in man in a comprehensive way that evolves as a biological species and creates arts sciences and human institutions, I see interesting parallels in the civilisations I think I know — with other civilisations present in the world today, and civilisations in past epochs, in historic and prehistoric times: I feel sure enough to think that I can contribute to comprehend the reason of man's presence in this world: patterns of evolution I have observed in epochs and in civilisations I am acquainted with can tentatively be applied to other epochs and civilisations in order to better understand them — as if it were a mathematical calculus of probability.

Progress in the broader sense I mean in these essays was very slow during the long millennia of human evolution. It was accelerated in proportion to the growth of the people in the whole world in general, and in the moment of the growth of a social group, of a civilisation in particular. Some civilisations simply disappeared for reasons we do not fully understand, and also some human races disappeared: we do not know how and why. The Neanderthals disappeared after having lived a long time together with other humans of other species of homo sapiens. Other hominids disappeared we do not know how and whether they left any legacy. Other human groups, let us call them human species, are very weak today and on the brink of disappearing from the face of the earth like other biological species of the animal and vegetal world: this may be because of natural reasons or also because of the aggressive presence and greed of civilised man which considers himself superior. In historical times the Romans in their conquests, for one example, annihilated entire peoples and absorbed some of them. Other smaller peoples

were annexed and absorbed culturally and physically by greater civilisations, by more prestigious cultural and political states, by cultural centres.

Other human races may be physically strong, not at all on the verge of extinction, but may not yet be ready to pick up the message of the moribund Western Civilisation: its science, its technology, its rational way of thinking and political organising. We do not know what will happen to them in the long run. The Aborigines of Australia have been able to create arts and myths according to the very same pattern other civilisations had done when they were in a primitive stage: the myths of the Aborigines can be compared to the myths of the Greeks, and of other civilisations. The myths of the Germanic tribes in Roman times can also be compared to the myths of the Greeks. Through myths first and more rational behaviour in more mature times, we can understand the distinct personality of each people, of each civilisation. We can feel the essence of their personality from their legacy, through the arts and sciences they have left — in a similar way as we feel the personality of single persons who live near us and with whom we are in contact everyday.

The populations south of the Sahara might grow and evolve and dominate the earth the way the Westerners have done and the Asians seem to be going to do. Then, when this happens, maybe in the distant future when the others have disappeared — they may feel an interest in modern day civilisations in a way that recalls how we modern Europeans are interested today in primitive civilisations of past millennia. In any case they count in the world today, culturally and even politically, more than they did one century ago or a few centuries ago. Racism on the part of the Westerners or the Asians may be today one aspect of that sense of superiority the strong man feels against the weaker one: the pride and the prejudice of those who belong to the winning side of history may feel against the vanquished. It is also possible that all men and all civilisations together disappear from the face of the earth, like other biological species, either for natural biological causes or also man made, — not to mention the end of the world in religious terms.

**In the Gilgamesh Epic men seem to be irreverent to the gods: they have won their commandments by constructing canals — men can live with their own power and intelligence, without depending on the whims of the gods. They seem modern men who have confidence in science and do not need religion, they do not need God. This epic is more complex of course, and**

reflects other positions as well. The Sumerians notice that the lambs are born in the spring when the stars are in a certain position. This is rational scientific observation for them. Later on, more primitive people in the same geographical area hit in another phase of their evolution, take this new piece of information as religious, as an influence of Jupiter and the other stars on the birth of the lambs at a certain astronomical conjunction in the spring. And they make gods of the stars.

Men create religions, said Vico. Man created God, not the other way, said Feuerbach one century later. This was said also by some rational philosophers in ancient times both in India and in Greece in the Hellenistic period. This is another pattern which would repeat itself in history again, from one cultural environment to another.

*National Geographic* is not happy with my notion of the relationship between birth – rates and progress. The same can be said of many people of institutes in America and in the world concerned with population problems. Interestingly enough, a few people are worried about my position, many others are definitely against it without even taking it into consideration, maybe because their ideology blinds them and prevents their understanding.

In the issue of December 1999 *National Geographic* published an interesting essay on the Greeks, focussed on the heroic age. It made me feel the same emotions I felt at the age of 16 when I had to read one book of the *Iliad* in the original Homeric dialect - which was easier to understand for us young students than the prose of, say, historian Thucydides. Not having continued practicing this, now I have forgotten the language. The map, the stress on the various periods from the Mycenaean onward, and many pieces of information were great. Now I can better understand why the heroes prayed the gods for good favourable winds, the reason for the shape of their shields, and the fact that the Trojans were Luvians.

**There is another topic that I would like to link to this one of the Greeks, that is (over)population problems, and paradoxes, of which two interesting essays have been recently published by *National Geographic*, and more are to be published. In those two essays everything was proper and correct, but I would like to shed some light in order to understand the problem from another perspective, as a complication to the problem – which always happens when the lives of human beings are in question. Civilisation progresses (economically, in political prestige, in the arts, the sciences and technology), when the birth rate is high. On the contrary there is no progress for that civilisation,**

there is death and no future on the earth for them, when the birth rate is low. That is the final stage of the evolution of a civilisation – before dying out or before being overcome by other more barbarian civilisations that are in the expanding phase. Both high and low birth rates are normal phenomena (as are also high and low moral standards). *National Geographic* does not seem to be willing to accept such a notion, like most American universities.

On page 75 the essay states:

*“The collapse of the Mycenaean world.....a period of shrinking populations, poverty, and cultural decline....”*

**Bingo!** We are approaching this very stage now in Europe.

This is a pattern I noticed in dozens of other historical contexts, together with other patterns such as moral decadence, or moral reinforcement with irrational manifestations, creation of technology more than in preceding periods. By contrast, when the Greeks expanded all over the Mediterranean sea like “*frogs around the pond*”, that was a phase of growth and expansion, and of progress for them in more extensive terms. The *Iliad* and the *Odyssey* are artistic (poetic) products at the very beginning of this second phase, of a new civilisation, even if the spiritual legacy of the Mycenaean on them and of all previous civilisations is evident to us. In the same way, Dante belongs to the modern western civilisation – with positive influences from the ancient western civilisation.

Now we in the West, more so in Europe than in America, with all our splendid civilisation, can consider ourselves at the evolutionary level of the Mycenaean around 1100 BC with their “*shrinking populations*”, before their own fall, for biological reasons. No matter if other causes could have contributed such as earthquakes, plagues, “*marauding sea people*” or “*migrating Dorians*”: such as migrating Germanic tribes all over Europe and the Roman Empire almost two millennia later, or migrating Aryans into India over-imposing previous civilisations. It does not matter if in the West today the shrinking populations can be caused, in addition to natural causes, also by man-made medical techniques that help reduce fertility and birth rates. I see us in the West now in the very same position of the Mycenaean around 1100 BC before their fall, before the end of their cycle: other peoples may take advantage of our culture, of our science and technology – Chinese, Indians, Arabs. It is just possible that they conquer us militarily, they may annihilate us, or without such catastrophes, they simply might take our place as we are going to diminish our presence in the world or also disappear

from the face of the earth because our vital driving force has vanished.

As for the pattern of declining birth-rates and morals, this is what Plutarch wrote at the beginning of the second century AD regarding the decline of the Greek civilisation:

*“One remarks nowadays all over Greece such a low birth rate and in general manner such depopulation that the towns are deserted and the fields lying fallow, although this country has not been ravaged by war or epidemic. The cause of this harm is evident. By avarice or by cowardice, the people, if they marry, will not bring up children that they ought to have. At most, they bring up one or two ..... It is in this manner that the scourge, before it is noticed, has rapidly developed. The remedy is in ourselves, we have but to change morals.”*

Despite Plutarch's exhortations, the ancient Greeks didn't change their morals, and so died out (information from Jacqueline Kasun, *P.R.I. Review*, 2000). The history of the Greek civilisation is well known to us, with its internal phases which match those of modern Europe and of the Western civilisation in general, including this interesting phenomenon of the variation of the birth rates.

*National Geographic* published another interesting article on the Indus Valley Civilisation (June 2000). There is not as much evidence regarding the Harappa civilisation as there is for the civilisations of Egypt and Mesopotamia, as we have not yet been able to decipher their writing. Yet scholars and archaeologists are puzzled at the fact of the sudden decline and disappearance of the whole civilisation. There are no signs of major violence from other peoples, no major invasions — the Aryans arrived at a later time, archaeologists note. Floods or plagues might have contributed. But

*“...in about 2000 B.C. the quality of the stone masonry became haphazard at Dholavira, indicating that the city was in decline ...The transportation system was disrupted. Trade must have fallen off. The easy wealth was no longer coming in. Eventually Dholavira was abandoned”. “No one can say with certainty why the sub-continent's long-lived civilisation came to an end”.*

By contrast, the beginnings of the civilisation seem to follow the same pattern of the rise of civilisations:

*“Recent excavations prove that a village stood at Harappa's site in 3300 B.C., or 700 years before the advent of the city's great*

*era, 2600 B.C.”. “To archaeologists who dug in the first half of the 20<sup>th</sup> century, ‘the Indus civilisation appears into being fully grown’, as one wrote”.*

Also historian Romila Thapar in her *History of India* points out that there had been a long period of slow evolution which gathered momentum towards the end and resulted in the spectacular Indus Valley Civilisation in c. 2300 B.C. The cities show evidence of an advanced sense of civic planning and organisation, and the presence of granaries suggest that there was a surplus produce that permitted city life and organisation. Then there was a decline, more a self decline as it seems, and rather rapid. We do not know whether it was influenced by the intrusion of less civilised peoples who occupied the sites of the Indus Valley in the first half of the second millennium B.C. By 1700 B.C. the civilisation had already vanished before the coming of the Aryans.

*National Geographic*, August 2000, also gives some interesting information on the civilisation that left the temples of Angkor in the jungle of Cambodia: I would like to read it according to my own ideology and to my own patterns of evolution.

*“The Tonle Sap was to the Khmer what the Nile was to the ancient Egyptians.... The Khmer learned to divert the retreating water to increase rice production. As the population increased, the Khmer began to manage water ever more intensively, not only for agriculture but also for religious purposes. ... Such works required centralized planning and the hand of an absolute ruler — the god-king. The resulting rice surpluses freed labor for other uses, notably constructing the god-king's temples. ... In the 12<sup>th</sup> century the capital of Angkor may have embraced a population of one million. By comparison Paris, one of the great cities in Europe at the time, had a population of perhaps 30,000. ... (King) Jayavarman died mysteriously around 1220, and the Angkor civilisation went into decline. The last stone temple at Angkor was built around 1290. Around 1430 Siam invaded from west, and the fleeing Khmer abandoned Angkor, eventually establishing a new capital at Phnom Penh....”*

From these essays of *National Geographic* there are no direct statements,



there is no direct information that there was a rise and fall of birth rates, of fertility, but they seem to me rather clearly implied as circumstantial evidence that in the beginning there was almost an explosion of the population, and that at the end the populations shrank, lost their vital driving force, and almost disappeared on their own without external causes.

The Vikings also seem to have undergone the same pattern — an increase in the fertility of their populations in the times preceding their migrations, their raids into western Europe, the Mediterranean sea and central Russia. (*National Geographic, In Search of Vikings, May 2000*).

The series of articles of National Geographic addressing population are well balanced, much better than articles on similar topics in other magazines (*National Geographic, October 1998: Human Migration, Women and Population, Feeding the Planet*).

An article from *Scientific American December 2000, Paleolithic Pit Stop*, also gives some interesting hints. Author Kate Wong suggests that Neanderthals and early modern humans behaved similarly at a French site, which may be interesting enough for its own sake. Author Wong is interested especially in the slow technological progress of early humans in those caves in southern France — the oldest best preserved fireplaces which date between 54,000 and 66,000 years ago.

*“Although a radical shift did not occur between the Middle and Upper Paleolithic, Simek notes that significant change did come later with the so-called Magdalenian period, perhaps because population size was increasing. Remains from sediments toward the back of the cave reveal that around 12,500 years ago the Magdalenians used Grotte XVI specifically as a hunting site, leaving behind characteristic harpoons and other implements....”*

There certainly is a population problem — how to feed the planet, how to go on living in an environment that we contribute to spoil. The fact that technology has helped us to feed more people is promising: it proved Thomas Malthus almost wrong in his gloomy anticipations two centuries ago, but it does not assure us much for the life and well being of the future generations. After two centuries of progress and of population explosion, today we seem to be at the very same time and at the very same position of Thomas Malthus, with the same worries for our future.

Why does *National Geographic* not put the entire problem from another point of view as well, not only a positivistic and rational one, but also question

the reason of the very presence of man on the earth? Why not consider populations and civilisations, expanding and shrinking, as living entities different from the single individuals that make them up? They seem to have their own internal biological laws which reflect more or less the same pattern of growth, evolution, maturity, decadence and fall, like other biological species living in larger groups. Unlike other biological species, civilisations progress, create new technology, sometimes they learn and use technology made by other civilisations — that is somewhat the legacy from other civilisations, or leave it to other civilisations. Sometimes this legacy is completely lost, or at least this is what we are inclined to think when we find the remnants of other civilisations in archaeological excavations and we are puzzled and wondered by their achievements of many centuries ago.

Interestingly enough, the most extreme religious denominations such as the Catholic Church and the Muslims are those who have more confidence in the future of man on this earth as they have faith and confidence in God and in man in a religious dimension, both in the earthly and especially in eternal life. Instead, those who have confidence in themselves on this earth only, in their abilities and in their reason only, after a period of self confidence excessive pride and excitement — show less confidence in their future and in themselves.

I would also question: what is progress? Why is there progress? Does it do anything good for me in addition to providing a better material life? Is there a God and does he factually intervene in the history of men as Providence? And how? Someone suggested to me that “progress” is directly linked to sin — the original sin and the sins of men on this earth.

In this essay on fertility increase or decrease of population we must keep in mind some cases in which the population decreases due to contingent causes: epidemics, disastrous wars and the passing of armies, in our case epidemics unfortunately caused by an overly numerous population which grew too quickly, that is unable to organize itself and to produce the food necessary to survive.

This is the case of the famines in India and China during and towards the end of the colonial regimes; this is also the case of the famines that went along with the plagues in Europe in the 14<sup>th</sup> century, and even later. The 14<sup>th</sup> century Italian cities grew in population and wealth in an explosive way without territorial planning and without adequate health-hygiene organizations. Not only was the birth rate high, but many people came to the city from the countryside looking for work and fortune. The agricultural

production of the farms was not always sufficient for the population of the city, and workers lived in poor hygienic conditions, hence the plague could take root easier. Due to Venice's position on the lagoon it had to be better organized because of its provisioning, and it imported wheat from Sicily.

During the Second World War and shortly after there was a large famine in India, we daresay one of many, due to its underdevelopment and overly numerous population. The Indian people have given me information that cannot be found in the history books of Western countries. England seems to have sent food aid (as well as weapons) via Afghanistan to the Soviet Union who was in war against powerful Nazi Germany, depriving the indigenous population. Moreover, during the English occupation famines were more numerous compared to previous centuries. In Bengal at the mouths of the Ganges and Brahmaputra rivers, but also in other zones of India, there was an entire network of canals that were built in ancient times and which somehow were still functioning in the 18<sup>th</sup> century. With the arrival of the English and the military defeat of various small regimes in all of the Indian region, these states, these civil organizations no longer functioned, the canals for irrigation were no longer drained as they were before, with the consequence of a dramatically reduced agricultural production: marshes began forming, while the population grew. The English were interested in the Empire from their point of view, not with the intention of helping the Indian people.

The same situation occurred in China. We cannot always blame the English or Western Imperialists as almost all developing countries tend to do today. The fact is that a political regime often declines on its own because of internal reasons: a new emerging social class takes the place of the old, or a foreign power (not necessarily the West responsible for three centuries of colonialism), imposes itself militarily causing ruin. A new foreign or local political regime, or the lack of organized political institutions – could be the first or remote cause of a famine. The Nobel Prize winner for Economics Amartya Sen and Bibek Debroy writing in *Manorama* underline how an organized society like modern India can render the whole Indian population able to produce and especially to buy the food necessary to survive.

In 14<sup>th</sup> century Italy and in all Europe there was the plague (also known as Black Death) that reduced the existing population to a half or a third, the famous plague described by Boccaccio in his *Decameron*. This was the century of Humanism in Italy, it was century of enormous progress in all of Europe. Despite this the population greatly decreased.

Firstly, we must consider the fact that the birth rate was and remained high, and that the population could have been reduced to half, yet not completely cancelled. Other plagues in other historical contexts, and in certain particular regions like the Tuscan Maremma on this same occasion, had struck 80% of the population or even more. If in 14<sup>th</sup> century Europe everyone had died, we could not speak about 14<sup>th</sup> century progress since death would have cancelled life. We should ask ourselves rather, but only question ourselves, how the world population would have been today if all the plagues in Europe and Asia in past centuries had not occurred, or even more so without the campaigns in favour of birth control; or just for an academic question, if there had been no homicides and no wars. My research and thesis seem to bring further complications and difficulties in the understanding of this problem.

At times, certain diseases or hardship in general strike a certain population and not another – as was the case with the populations of the Americas when they came into contact with Europeans, whereas Europeans and Africans resulted more physically resistant. Luck seems to have favoured some people more than others.

Progress is a human factor, it is linked to human life, to the vitality of a population, to the trust of the people in building a better world, richer, more prosperous, despite the evils of the world and adverse circumstances; in confidence in this life and also in an afterlife with a religious dimension. I must repeat that progress does not necessarily mean happiness. We often note, unfortunately, that war with its evils brings progress as well. A friend of mine who is a biblicist goes as far as to state that the experience of sin brings a man towards progress.

Giuliano Procacci's book, *Storia degli Italiani, 1968-70 (History of the Italians)*, makes us note how the fertility rate was high in Italy from the 12<sup>th</sup> to the 16<sup>th</sup> century, a long period of great progress, of the genius of the Renaissance – despite its temporary slow down due to pestilence and famine. Interesting are also numerous statistics that concern the population of the individual cities and regions, in the north as in the south, exactly in proportion to the growth of wealth and political prestige of the individual historical-geographical areas. Procacci acknowledges this relationship between birth rate and progress without stressing on it as I am doing here in this essay, and he makes us notice this with numerous examples although he does not insist on this concept.

In 1421 the Doge Tamaso Mocenigo wrote a letter-testament to his fellow

citizens in which he draws an enthusiastic portrait of the riches and power that their city had achieved. According to Mocenigo the population of Venice was of 195,000 inhabitants who consumed 355,000 bushels of wheat, most of which was imported from Sicily and Puglia. The value of their houses, all of which were built in stone, amounted to 7,050,000 ducats, and the amounts of money engaged in commerce totaled 10,000,000 ducats with annual profits of four million ducats. Venice had a navy composed of 3000 ships of different types along with 20,000 sailors at its disposal.

Procacci considers Mocenigo's statistics somewhat exaggerated; according to more recent and accurate estimates Procacci states that the population of Venice at the beginning of the 14<sup>th</sup> century was of about 110,000 inhabitants, and about 70,000 after the great plague that took place in the middle of that same century, despite the constant increase of the population. Despite the unhealthy environment of the lagune compared to the cities of the mainland, Venice was an organized city-state: the ruling class and the same citizens demonstrated civic sense: canals were drained and cleaned, and the population was better fed, hence the plague did less damage if compared to other cities. The Tuscan Maremma area and the marshes around Siena, for example, saw 80% of their population decimated. Mocenigo's proud position remains a significant report of Venice's general progress in preceding centuries.

During the period of long and slow decadence that followed Agnadello, Venice had nevertheless remained a great city with 175,000 inhabitants, with numerous manufacturing industries, although it had lost some of the initial lustre in its central Mediterranean commercial activity; and even after the plague of 1576-77, its population remained around 140,000.

At the end of the 14<sup>th</sup> century after the great plague that had raged throughout Europe – Italy had again become a densely populated country. Bologna had a population of 12,000 people inside and 17,000 outside its city walls. The population of Pistoia was of 36,000 inhabitants before the plague and of 19,000 at the end of the century. The total population of the Italian peninsula was between seven and nine million inhabitants at the end of the century: this can be derived from the *Rationes Decimarum*, the register of the tithes edited as far back as the 13<sup>th</sup> century.

The Milanese chronicler Bonvesin de la Riva in his *Magnalibus urbis Mediolani* presents an enthusiastic picture of his city: in 1288 Milan had about 200,000 inhabitants, 11,500 houses, 200 churches, 150 villas with castles in the surrounding country, 10 hospitals, 300 bakeries, over 1,000 laboratories and a large number of merchants and artisans. Again, in this case we must

consider the amount of 200,000 inhabitants an exaggeration: a little over 100,000 could represent a more credible estimate.

In chapter five, *1550 – 1600: Decadence and Greatness, The Spanish Territories*, Procacci (*History of the Italians*) writes:

“From about 1530, the time when the territory ceased to be the scene of clashes between the French and the Spanish, Naples too had its St Martin's summer. There is no better evidence of this than the population curve; from 1532 to 1599 the number of 'heads' liable to taxation rose from 315,000 to 540,000, excluding the city of Naples, which began to acquire the status of a great metropolis in these years. At the end of the century the population of Naples had reached two hundred thousand: it was the liveliest and most populous city of Europe.... The sixteenth century (Spanish) colony of Naples is not exception to the rule whereby an impetuous rise in population and accelerated urban development coincide with favourable economic circumstances and vigorous production. The part we know best, thanks to very recent studies, is Calabria; and the data provided all agree in including that population increase and economic expansion went together. In fact the doubling of the number of the households between the account of 1505 and that of 1561 (from 50,669 to 105,493) is paralleled by the figures relating to the production of silk, the region's principal resource, which also doubled. There were substantial increases also in the cultivation of cereals and olives, and in livestock..... Towards the end of the sixteenth century there were signs that the economic situation was getting duller and deteriorating. After the plague made a dramatic reappearance with the great epidemic of 1576, the years of famine followed with increasing regularity, the birthrate dropped, and the mood of economic euphoria, which price revolution had encouraged, faded....”

The high rate of fertility and its variation in time, the increase of the population due to the phenomenon of fertility and other causes like urbanism, emigration, or wars and pestilence, are without a doubt elements worth taking into consideration for the type of study we are undertaking: progress, stagnation, or even involution at the end of a civilization, but they should not be taken too literally – a phenomenon causes another, mechanically. Man collects this data and elaborates it with his brain, with his human experience, with his knowledge of history and with his intuition – even beyond the aims he himself had set. In this case the relationship birth rate – progress must be examined in parallel to the variations of moral and religious sense, at times in a bigger context; sometimes it concerns a single social class, or a single population that lives in close contact with another population, in the same

territory. Every historical context can be similar but also different from another – just as two individual people are similar to each other in some ways and different in others. The most linear case that I seem to have found is that of England and its evolution since the Norman Conquest, and even earlier with the Saxons, an evolution in the many aspects of its civilization starting from the evolution of its political institutions. In this particular case, more than in other context, fertility must be put in relation with the whole nation, but in particular with the social class that is to become dominant.

Lastly, we must keep in mind the physical evolution of man and his slow progress in the last two or three million years in relation to the increasing dimension of his brain, in his ability to organize himself in civil societies which are different from one another, to think in abstract, to create and understand mathematics, to create elementary technology, to act together with other men in organized societies. All this must be kept in mind even when we consider the strengthening of irrational moral sense that causes religious crusades or the growth and expansion of a Medieval city, or when we consider a powerful state whose institutions are of a dictatorial regime and which is about to transform itself into a state whose institutions are to be democratic. It is not possible to limit ourselves to a mere mathematical relation: fertility equals progress. One must have his own human experience with regards to the history of men, and must be in search of understanding that which is given you to be understood, almost as it were lyrical tension – and to interrogate oneself as to why we behave in a certain way and of our existence of his earth.

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