Orio Giarini is a Member of the Board of Trustees of the World Academy of Art & Science and founding Editor-in-Chief of Cadmus Journal, a cooperative venture between the South-East European Division of the Academy (SEED) and the Risk Institute, Geneva. He is a member of the Club of Rome, served on its Executive Committee (1982-86). He is also founding Editor-in-Chief of European Papers for the New Welfare, a journal focusing on economic and social welfare issues related to aging.

As an economist, his fundamental endeavor has been to understand economy as a basic human activity founded on technological and cultural developments. His years as Director of the techno-economic division at the Battelle Institute in Geneva provided him with invaluable insights into the interaction between research, knowledge and economy. He contributed to the organization of the first conference of the Club of Rome in Bern and had many opportunities to interact with great scientists such as Lew Kowarsky, Victor Weisskopf and his brother Walter, Karl Popper and others. He was founding Secretary General of the Geneva Association (1973-2001), the world’s premier research center on economic issues related to risk and insurance, whose members include 90 CEOs of the world’s major insurance companies in their personal capacity.

In parallel he taught a course at the University of Geneva on what has since become known as Service Economics benefitting from his professional experiences, and helping to formulate little by little a coherent view (and theory) of contemporary macro-economics. All this made it possible for him to publish 12 books, including four reports to the Club of Rome (prefaced by Aurelio Peccei and then Alexander King) and the major one, The Limits to Certainty prefaced by Nobel Laureate Ilya Prigogine. In 1975 he founded The Geneva Papers on Risk and Insurance (now published by Palgrave and edited by the Geneva Association).
Orio Giarini

ITINERARY TO THE THIRD AGE

THE RISK INSTITUTE
Special Edition of the “European papers on the New Welfare”, No. 18, 2013
This is a revised and slightly shorter version of the first edition of the book in French (1992 – Itineraire vers le retraite à 80 ans), and is translated from the Italian edition “Itinerario Senza Frontiere” “Quaderni Europei sul Nuovo Welfare”, No. 14, 2010 by John McGinty
The Risk Institute

The Risk Institute, partly supported by The Geneva Association, was established in order to extend the studies on the issues of risk, vulnerability and uncertainties to the broader cultural, economic, social and political levels of modern society. It is now in the process of becoming established as a Foundation.

The starting point defining the programme of action was an informal meeting held in Paris in 1986. Among the participants were Raymond Barre, Fabio Padoa, Richard Piani, Edward Ploman, Alvin and Heidi Toffler and Orio Giarini.

The Institute’s first report by Orio Giarini and Walter Stahel was published in 1989, reprinted in 1991 and revised in 1993, with the title *The Limits to Certainty — Managing Risks in the Modern Service Economy* (Kluwer Academic Publishers, Dordrecht, The Netherlands), with an introduction by Nobel Laureate Ilya Prigogine. It was also published in French, Italian, Romanian and Japanese. A completely new German version was published in 2000 with the title *Die Performance Gesellschaft* (Metropolis-Verlag, Marburg).

The book stresses the point that uncertainty is not just simply the result of inadequate or insufficient information. Every action extending into the future is by definition uncertain to varying degrees. Every ‘perfect system’ (or ideology) is a utopia, often a dangerous one: the total elimination of uncertainty in human societies implies the elimination of freedom. Learning and life are characterised by the ability and capacity to cope, manage, face, contain and take advantage of risk and uncertainty.

In 2002, The Risk Institute published with Economica (Paris) the book *Itinéraire vers la retraite à 80 ans*. Ever since, it has been mainly concerned with a research programme on social and economic issues deriving from extending human life expectancy (usually and wrongly defined as the ‘ageing’ society), which is considered the most relevant social phenomenon of our times. This is particularly relevant in the context of the new service economy. The Risk Institute contributed to the organisation of the conference on “Health, Ageing and Work” held in Trieste and Duino on 21-23 October, 2004. Followed by a second conference on similar issues, in Turin, October 2007. On this basis, it has taken the initiative to publish a journal from 2005 titled the EUROPEAN PAPERS ON THE NEW WELFARE — The Counter-Ageing Society, in two languages (English and Italian), both freely available on www.newwelfare.org.

In 2010 the Institute published in Italian “Itinerario senza frontiere: dal Texas alla terza età”. It is now publishing the *CADMUS* Papers (www.cadmusjournal.org), journal of the World Academy of Art and Science (WAAS).

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Orio Giarini’s autobiography is a fascinating record of the experiences, people and events that stimulated the mind of an original thinker to study the broader fields of social existence transcending the narrow limits of the traditional discipline of economics. They led him to perceive the evolutionary changes that would alter the nature of economy and economic theory as radically as Relativity Theory and Quantum Mechanics altered the 19th century principles of Physics. Yet while the world was quick to recognise and adopt the new paradigm in Physics, both theorists and policy-makers have been slow to recognise the compulsion to adopt a fundamentally new paradigm in economics. But whenever they arrive at that realisation, they will find much of the essential foundation has already been laid by this far-sighted economic visionary.

Garry Jacobs
CEO, World Academy of Art & Science; Managing Editor, Cadmus Journal
— Introduction —

From Limits to Growth to Limitless Growth*

Garry Jacobs,
CEO, World Academy of Art and Science;
Managing Editor, Cadmus Journal

Ivo Šlaus,
Honorary President, World Academy of Art and Science;
Chairman of the Editorial Board, Cadmus Journal

Forty years ago was a crucial turning point in human affairs, though it was poorly understood, disputed and even denied at that time. Three events stand out for their particular significance: the end of the Gold Standard in 1971, the publication of *The Limits to Growth* in 1972, and the first oil crisis in 1973. They marked the end of an era of rapid economic development for the industrialised countries, unalloyed optimism and unquestioned faith in capitalism, the beginning of a period of increasing doubt and uncertainty, which has now culminated in a multi-dimensional crisis of unparalleled proportions. Since then, the world has been wracked by increasing financial instability demarcated by more than 200 monetary currency crises and 145 large-scale banking crises. The average growth rate in Western Europe declined progressively from 6.1% in the 50s to 4.8% in the 60s and 2.3% in the 70s, then fell to less than 2% since 1990. The initial quadrupling of oil prices, an alarming reminder that non-renewable resources are actually non-renewable, spurred price inflation in the late 70s, which was only kept under control by tight monetary policy, slower growth, and rising levels of unemployment and income inequality in the decades that followed.

Slower economic growth, financial instability, rising levels of unemployment and inequality, and depletion of scarce resources seem to be inextricably linked together, a gruesome set of omens prophesying the failure of free market, industrial capitalism and an early end to the exhilarating rates of growth witnessed by the industrialised nations in the aftermath of the Second World War. The current international financial crisis, economic contraction in some countries, slower growth in many others, high unemployment and rising inequality in OECD countries today appear, in retrospect, to be a natural outcome of a long historical trend. Recent global concern regarding climate change arising from the increasing and unsustainable consumption of fossil fuels seems only to confirm the deepest suspicions of those who believe that something is fundamentally wrong with current economic theory and the prevailing industrial growth model. But none of this was very clear at the time it was taking place. It was at this crucial juncture in recent history that Club of Rome published its landmark report *The Limits to Growth*, stirring vigorous debate and raising fundamental questions about humanity’s future economic prospects.

* This article was originally published in Volume 1 Issue 4 of *Cadmus Journal* in April 2012.
Today we are poised like the 15th century Portuguese sailors who were urged by Henry the Navigator to navigate around the Cape of Bahador, and feared to travel to what so many believed was the edge and end of the world. As the whole world grapples for new ideas and practical solutions to fundamental economic and ecological challenges, it may be reassuring to discover that a significant groundwork has already been laid for the new theoretical perspectives so desperately required. Orio Giarini has been an eye-witness to these unfolding events, a keen observer of each step in the process, a critical analyst of prevailing ideas, and a cauldron for the brewing of new perspectives that gradually distilled over decades into profound insights. An unusual mix of academic economist, business practitioner, scientific research manager and original thinker, his four reports to the Club of Rome present provocative questions and fresh insights that press back the borders of conventional thinking in economics and extend beyond to the entire field of social sciences, challenging our very conception of knowledge. Raised in the fading old-world humanistic cultural values of Trieste, he learned to think freely and unconventionally while on Fulbright Scholarship at the University of Texas, acquired a disciplined realism and practicality during years directing industrial and scientific research at the Battelle Institute in Geneva, and learned to peer beyond the veil into the unchartered waters of uncertainty for almost three decades as founding Director of The Geneva Association, a global think tank established by the most important leaders of the world’s insurance companies.

1. Origins of the Club and the Report

Revolutionary advances often begin with a crisis. That is true of intellectual revolutions as well. The crisis of the early 70s was pre-eminently a crisis of the mind. It arose from a study commissioned by an informal think tank established by Aurelio Peccei and Alexander King in April 1968, a month prior to the largest ever general strike and massive public protests in France concerning the economic and social evolution of democracy. Peccei’s rich and varied experience working in China before WWII, as one of the leaders of anti-fascist resistance during WWII at Fiat in Argentina after the war, and back in his native Italy as vice president of Olivetti and an important consulting group in the 1960s, exposed him to a wide range of social and economic conditions. The Cold War confrontation between the USSR and USA combined with the persistence of poverty and rapid population growth in developing countries made him acutely concerned about the increasing vulnerability of the world to global disaster. He set forth these concerns in a book on global interdependence and planetary challenges entitled Chasm Ahead (1969).

Peccei was an industrialist. His co-founder was a scientist. Alexander King was at that time director-general of education and science at the Paris-based Organisation for Economic Cooperation and Development. A Scot by birth, a chemist by education, he coordinated Anglo-American military research during WWII, and later served as chief scientist at the British Department of Scientific and Industrial Research and then as director of the European Productivity Agency in Paris during the 1950s. He emerged from this experience with a strong commitment to work for the peaceful application of science for the betterment of humanity. These two were joined by Saburo Okita, a key economic adviser to the Japanese government
From Limits to Growth to Limitless Growth

who later became Foreign Minister; engineer Eduard Pestel, President of the Volkswagen Foundation, who founded the Institute for Applied Systems Analysis and Forecast eV (now Pestel Institute) and later became Minister of Science and Arts in Lower Saxony; and Hugo Thiemann, Director General of the Battelle Institute of Geneva, who requested Giarini to attend meetings and organise the first official conference of the Club of Rome at Berne in June 1970.

That meeting proved decisive. Hasan Özbekhan had been charged by the Club with preparing a project to describe and analyse the world “problematique” and launch a debate on possible solutions. Özbekhan was an American intellectual of Turkish descent, who had produced some reports for OECD on how to develop a modern economic plan. When he frankly confessed to Club members in Berne that his proposal had almost no chance of producing useful results, Jay Forrester of MIT’s Sloan School of Management brashly offered as an alternative to apply systems analysis to develop a model of global interdependence. Forrester drew up the basis for what would become the Club’s famous report on limits to growth during his flight back to the USA. Incorporating data on population growth, industrialisation, food production, pollution and depletion of resources within a single model, he produced graphs illustrating that the world’s development would reach unsustainable levels within forty years, leading to a blind alley or a planetary crisis. After his preliminary text was endorsed by the Club’s executive committee at a meeting in Boston, Forrester entrusted verification of the simulations, assumptions and data to his assistant, Dennis Meadows, who drew on other university resources to organise special sectoral studies on key issues.

Forrester’s model highlighted a serious increase in pollution (already so very apparent in the rivers and urban centers of the Western world), the impacts of continued high rates of population growth, and the negative environmental effects of rapid economic growth. Coincidentally, this was the time when Battelle Institute was conducting research sponsored by major corporations examining the hypothetical impact of a quadrupling of oil prices. Prophetically, the actual price of oil did rise from $3 a barrel to $12 between 1971 and 1974.

2. Intellectual Challenges

Like the worldwide protest movements of the late 1960s, which spread like wildfire because they were negative expressions of positive social urges for greater freedom, social equality, human dignity and self-affirmation, The Limits to Growth portrayed the dark face of the benevolent God of infinite human well-being aspiring to liberate growth from its negative stigma by challenging the superstitions that support its irresponsible, destructive and extravagant excesses. No one had anticipated the magnitude and intensity of fervor that would be generated when the report was published in 1972. Journals were inundated with articles, often written or inspired by economists, loudly and vigorously denouncing the false conclusions and deceptive logic applied in the report, challenging the very notion that a crisis or a slowdown in economic growth was at all likely. Harsh attacks by many economists centered on one point: according to them, the report under-rated the infinite or almost infinite capacity of research. Many confidently proclaimed that as soon as resources became scarce, pricing mechanisms would stimulate research which would in turn supply new solutions.
These authors apparently believed that discovery and invention were merely a matter of short term investment. Conveniently forgetting the long list of qualifying and rarely realisable conditions required for equilibrium between supply and demand taught in every first year economics course, this faith in the power of price to dictate results was tantamount to belief in myth or magic.

Giarini’s experience directing long term research and technology development projects at Battelle did not support this blithe assessment. While fully cognisant of the remarkable achievements of modern science and technology, he knew firsthand the inherent risks involved in all research activities and the very high probabilities of failure. In pharmaceutical research, for instance, less than one in a hundred new ideas reaches clinical trials and fewer than ten percent of those ever reach the market. He realised that it was simply unrealistic to assume research could always be relied upon to generate any specific set of desirable results within a given budget and timeframe. Otherwise, how to explain why a cure for cancer and low priced electric cars had not been developed long ago? He was astonished by the unquestioning faith of those who believed that the fundamental research was, in modern society, a factor totally within the economic system and subject to the same law of supply and demand that governed the production of toothpaste and TVs. This view failed to take into account limiting conditions, inertia, perceived risk factors and structural rigidities. But more fundamentally, he was struck by the fact that opponents of the report failed to recognise the inherent uncertainty of future events. Later, he was to observe the same attitude of confident absolutism among prophets of economic and ecological doom. Here too, he found unquestioned conviction that extrapolation from past and present trends was proof of future catastrophe. The end of growth was a foregone and inevitable conclusion. Here too, the inherent uncertainty of future events was overlooked, which meant not only the possibility of unexpected failures, but equally the onset of unanticipated discoveries. As none had expected the quadrupling of oil prices in the early 70s, whoever imagined or anticipated the sudden emergence and exponential growth of the Internet since the mid-90s?

Gradually, the controversy over the Club of Rome report spread from the economists to the political arena in Europe. European Commission President Sicco Mansholt broadened the debate regarding ecological problems. Conservative French economist Raymond Barre and others condemned the report’s dire economic prognosis as a provocation for social unrest. Secretary General of the French Communist Party, Georges Marchais, denounced it as a conspiracy of the industrial right to undermine labor union wage negotiations. Some Soviet intellectuals hailed it as a sign of the coming crisis of capitalism. Both the praise and vehement attacks on the report helped spread the word and boost circulation of the book, which was translated into ten languages and eventually sold over 10 million copies. Unexpectedly, quotations from the report regarding growth, ecology, population growth even found their way into academic text books. In spite of repeated efforts to emphasise the environmental and demographic issues, to the dismay of Peccei and King, the Club became widely regarded as an advocate of “zero growth”. Academia and public opinion generally found themselves on opposite sides of the debate, but eventually it was public opinion that held sway. Calls
to respect the environment, conserve natural resources, and strive for sustainable growth became increasingly frequent.

2.1 Scientific Certainty vs. Social Reality

The wide gulf between economic thinking and actual economic reality points to a more profound gulf in knowledge underlying failures of modern economic theory as well as social theory in many other fields – the profound disconnect between theory and human life. The remarkable success of the natural sciences in earlier centuries had generated a blind confidence in the ability of science to measure, analyse, and deconstruct reality and then reassemble it in a more perfect configuration and working order. The mathematical precision of astronomical projections by Copernicus and Galileo, the infallible accuracy of the laws of motion which Newton deciphered, and countless other discoveries had created a widespread belief, which matured into a pervasive and unquestioned assumption, that a similar application of mathematical principles to economic and social life could lead to equally valid principles. Ironically, physicists had abandoned this simplistic notion almost a century earlier when Heisenberg first postulated his uncertainty principle. Yet, 19th century belief systems continue to pervade the social sciences.

2.2 Equilibrium vs. Evolution

Furthermore, while the motion of objects, the behavior of gases and other physical processes could be accurately defined by equilibrium equations, it became apparent that social processes could never be adequately explained based on laws of equilibrium, because society undergoes a continuous process of development and evolution. Giarini argues that the well-known economic principle that the supply equals demand is not a law at all, but only a tautology. Economic systems very rarely and only transiently reach anything close to equilibrium. Indeed, as Soros and others have observed in diagnosing the current international financial crisis, markets tend to be inherently unstable, moving far from equilibrium before swinging back in the opposite direction. This is especially true of financial markets which are subject to unregulated speculation and profit-taking.

But Giarini’s challenge goes even further. He argues that the very nature of economy is evolving and that the rules and formulas applicable to the old industrial economy which is receding are increasingly relevant to the knowledge-based service economy which is emerging. Without our realising it, the fundamental laws of economics have changed. Indeed he contested the widespread viewpoint of many both within and outside the Club of Rome that the report conclusively establishes finite limits to growth. Rather, he argued that the report proved the inherent limitations of the existing industrial model of economic growth, not any inherent limits to growth itself.

2.3 Divorce in the Social Sciences

The Limits to Growth pointed to one of the major reasons for this disconnect between theory and reality – a specific instance of a more fundamental schizophrenic malady – the tendency of the modern mind to dissect reality into slices and then further detail them into
smaller and smaller segments which become increasingly separated and unconnected to the larger whole of which they form a part. He discovered this tendency not merely among theorists, but among business practitioners as well as scientists. The plight of humanity which the Club of Rome identified arose from a tendency to focus on economic growth for its own sake divorced from its wider impact on society and the environment. Theoretically, this translated into a narrowing and specialisation of focus – the divorce of economics from political science, society, ecology and culture; the divorce of economic growth from employment and social welfare; and, as we now witness with increasing dismay its consequences, the divorce of financial markets from the real economy. Long ago he concluded that this fragmentation gives rise to a partial, fragmented and grossly distorted view of reality. More importantly, it gives rise to uni-dimensional strategies that sooner or later run into brick walls or threaten to bring down the entire edifice of civilisation.

The controversy presented repeated occasions for serious reflection on fundamental assumptions underlying modern economics and prompted him to return for fresh insights to the great classics of economics, from Adam Smith to John Stuart Mill, by way of Marshall and Schumpeter. His reading compelled him to undertake a fundamental reassessment of the entire role of economy in the wider field of social existence. He was aided in this effort by continuous opportunities to interact and exchange views with other leading thinkers of the day. In addition to Aurelio Peccei, Alexander King, and other original members of the Club of Rome, his thought was stimulated by interactions with Nobel economist Jan Tinbergen; Karl Schwab, founder of the World Economic Forum; Michel Albert, Director General of the European Community and later President of the second largest French insurance group, Assurances de France; and many other prominent thinkers. In 1986 he set up the organising committee for the Risk Institute, whose members came to include Nobel physicist Ilya Prigogine; science philosopher Karl Popper; futurists Alvin and Heidi Toffler; Raymond Barre, former EU Vice President before he became the first President of the Geneva Association and then the French Prime Minister; and Fabio Padoa, Managing Director of Generali Insurance in Trieste and founder of the Geneva Association.

3. Breaking the Limits

Giarini’s four reports to the Club of Rome pinpoint limitations in prevailing theory when confronted with a rapidly evolving social reality. Saved from cynicism by a keen sense of history and a deep faith in human values, his books present an analysis of these limited conceptions and a plethora of fresh perspectives struggling desperately to be grasped, formulated and communicated.

In Dialogue on Wealth and Welfare (1980) he examined underlying premises regarding contemporary economic theory and its relationship with human welfare. Drawing on insights from Smith’s Wealth of Nations, he traced back the roots of modern economic theory to the crucial point where theory became divorced from social reality. Smith had always regarded himself foremost as a moral philosopher and his interest in economics arose directly from his interest in promoting the welfare of humankind, both in his own country and in the world-at-large. For him, economic theory was a means to an end and never an end in itself. The task
of the economist was not to discover the inalienable laws governing economic systems but to discover the means by which economic systems could be made to best promote the welfare of human beings. For him, economy was an inextricable part of a greater social whole. It is true that Smith advocated removal of barriers to free international trade, which under mercantilist regimes had become so burdensome that they stifled enterprise, supported monopolies and discouraged efficiency. But at the same time he regaled the blind pursuit of self-interest by business at the expense of public welfare and was deeply concerned by the concentration of wealth and power among a small group of influential producers.

3.1 What Type of Growth?

In his first report to the Club, Giarini argues that the central question regarding growth is not ‘How much?’ but ‘What kind?’ The simple, self-evident conclusion he arrived at was that the value of economic growth depended solely on its contribution to human welfare. Growth for growth’s sake is not only meaningless, but potentially disastrous. The problems highlighted in the Club of Rome report arose directly as the result of fundamental defects in the prevailing concept of economic growth.

That concept of growth is based in turn on a distorted view of economic value. Economics was founded at a time when scarcity appeared to be the inevitable human condition. Industrialisation was viewed as a means to mitigate shortages by raising human productivity and lowering production costs. It was natural enough under these circumstances for the early economists to consider any increase in production as a net addition to national wealth, but that ceased to be a valid assumption long ago.

Before the end of the 19th century, the problem of limited supply was supplanted by the problem of limited demand. Industrial economies could produce an endless supply of goods, but unless purchasing power were widely distributed and continuously rising, there would soon be too few people with the capacity to procure them. The principal economic crises of the 19th century were crises of demand. In recognition of this fact, Marshall first and then Keynes and later on more and more economists shifted their focus from the supply side to the demand side of the equation, which gave rise to a new set of economic principles that guided public policy in market economies throughout most of the 20th century. In the process of trying to keep growing, economists lost sight of a larger issue: namely, that unlimited capacity for production would inevitably tax the carrying capacity of the earth’s resources.

While most economists worried about how to stimulate demand to keep pace with growth of production, the changed circumstances compel us to ask a more fundamental question: “What type of growth do we really want?”

3.2 The Problem of Value

This led Giarini to one of the most vexing problems of modern economics, the fundamental notion of value. You get what you measure, according to the management dictum; and the type of economic growth prevalent in the past two centuries is a direct reflection and result of the way we define and measure economic value. A truly constructive science of economics that eliminates the wasteful excesses and destructive aspects of unregulated activity can only
be founded on a wholly positive conception of economic value. In Dialogue on Wealth and Welfare, he analysed the fundamental flaws in the prevailing notion of value and how it is measured. Although many of his insights have now been widely recognised, his arguments still carry the force of his original perception and theoretical clarity. Value is a purely human conception and the only sound basis for assessing the value of any economic activity is according to its contribution to human welfare.

This led him inevitably to the concept of negative value. It could well be, he argued, that many transactions recorded as productive may be destroying more than they produce. Prevailing measures of economic growth and national wealth are based on the implicit assumption that all monetarised activity adds to the total stock of wealth and that this is the sole or major determinant of the wealth of nations. This premise ignores the now obvious fact that current wealth creation is largely based on the consumption of non-renewable natural resources, whose true replacement value is not being measured. Long before the consequences of climate change threatened to undermine all conventional notions of economic value, he argued that the real future cleanup costs of pollution from industrialisation and fossil fuel consumption were not reflected in measures of GDP and when later they came to be included, the expenditure to address pollution would be recorded as a further positive contribution to growth. Is expenditure on treatment and management of refuse really a net addition to wealth and welfare? Obviously, not all economic activity reflect a real enhancement in human welfare. Indeed, much of what we measure and record as growth represents activity which may actually reflect a deterioration in human welfare. Rising costs of medical care resulting from pollution and lifestyle stress, expenditure on bottled water to replace contaminated natural sources, rising costs of the criminal justice system due to higher rates of crime and drug abuse, increased military expenditure in response to high levels of youth unemployment, social unrest and terrorism abroad, all contribute to growth of GDP, yet result from a deterioration rather than an enhancement in human welfare. So too, the divergence of capital from the real economy to speculative financial markets has generated higher rates of growth for the financial service sector over the past two decades, but far fewer jobs and widening levels of income inequality.

A central theme of the report is the vital distinction between wealth and income. The right goal of economic activity is to enhance the wealth of the population, which means to enhance its accumulated capacity for consumption (stock), rather than striving to perpetually stimulate greater production (flow) for its own sake. The report challenged the very notion of trying to measure human welfare in terms of the flow of economic activity, as GDP measures it. Is the wealth of nations really enhanced, if rapid mechanisation leads to a drastic increase in production at the cost of large scale unemployment, rising crime rates and mounting industrial pollution? Theoretically, it might be possible to generate an endless array and volume of goods, but of what significance would that be unless the entire population benefits from them?

The simple analogy of a bathtub full of water is illustrative. The water in the tub represents the cumulative stock of wealth in society. The tub is equipped with cold and hot water taps,
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representing the inflow of natural and human contributions to the creation of wealth. One tap represents the contribution of monetarised activities to wealth creation, the other represents non-monetarised activities such as air and water quality and depletion of resources. Sensors on both taps record only total inflow, regardless of whether the flow involves production of useful products and services or remediation for deterioration of health, social stability and the environment.† Elizabeth Mann Borgese, daughter of the great German writer Thomas Mann, embraced this model and applied it to assess the economic value of ocean wealth in a report to the Club of Rome entitled The Future of the Oceans (1986).

Traditional growth measures also failed to reflect positive off-balance sheet transactions. When economic or technological development delivers useful goods and services at little or no cost, such as free email, internet chat, voice conferencing or global positioning, GDP remains untouched, while the real wealth and welfare of people increase substantially. Without more reliable measures, how can we ensure economic policy encourages the right type of activities? The obvious answer is that we cannot. An economics of human welfare necessitates a reconceptualisation of value and development of new ways to measure it.

4. Extending Disciplinary Boundaries

One of the reasons Giarini’s writings have not gained wider recognition is because his vision is all-encompassing and, therefore, foreign to the thinking of traditional academic economists. While others divide and subdivide economy into smaller specialised fields – finance, marketing, public policy, banking, central banking, employment, monetary policy and the like – this perspective constantly expands the boundaries of thought to encompass domains lying outside traditional economic thought. Apart from extending economy to encompass ecology and negative value, it expands the boundaries of economics in at least three other directions until it becomes co-terminus with society as a whole.

4.1 The Moving Line of Money

First is the emphasis on the non-monetarised sector comprising welfare-related activities which did not involve any monetary exchange. In Smith’s day, only a fraction of those activities required to sustain human life involved money transactions. The majority of people lived or worked on farms producing their own food and clothing, building their own homes and either making or resorting to barter exchange to acquire other essential articles. The use of money was largely utilised for public expenditure, urban living, international trade and maintenance of standing armies. Today, both self-production and barter have largely been replaced by monetary transactions which contribute to growth of GDP but do not necessarily reflect a real enhancement in human welfare. In earlier decades very few people paid for drinking water. This raises concerns regarding the deteriorating quality of ordinary water today which has spurred the growth of the bottled water industry to $60 billion globally. But does that growth really reflect a $60 billion enhancement in human welfare?

Although passing largely unnoticed, the line between the monetarised and non-monetarised sectors is continuously shifting one way or the other. Due to the skyrocketing

† For more on the bathtub analogy, see http://www.cadmusjournal.org/article/issue-3/evolution-wealth-human-security-paradox-value-and-uncertainty
cost of medical care, doctors’ home-visits are almost a forgotten service, but the cost and inconvenience to patients of travelling to clinics and hospitals go unrecorded. Household work remains one of the largest domains in the non-monetarised sector. Fewer middle class families can afford housemaids, chauffeurs and cooks today. Many people fill their own gas tanks, wash their own cars and mow their own lawns, where previously they may have paid someone else to do it. An obvious example is the housewife who seeks employment and hires others to clean her home and cook for the family or ends up serving nutrition-poor fast food to her children, because she has no time to prepare healthy meals at home. These monetarised activities all contribute to an increase in GDP, yet in the process the health of her children, the cleanliness of the house, the harmony of her family and her own peace of mind may have deteriorated.

Monetarised and non-monetarised sectors are related by an ever-changing and evolving interaction. Together they constitute a greater social and economic reality out of which monetarised economic potential emerges and from which it disappears. Economists tend to focus on the defined field of the monetarised sector and overlook the potential of the greater non-monetarised sector from which it emerges. They see what exists today, but do not consider the unrealised potential. The Internet provides the most dramatic example of the unlimited potential of the non-monetarised sector. Internet companies have found a way to monetarise the value of human attention. The mere fact that so many people visit and view a web page or website is now recognised to be of immense value, so much so that the market value of Facebook is estimated at about $100 billion at a time when its revenues are only about $4 billion.

5. The Evolution of Economy

Smith published *The Wealth of Nations* a year after James Watt perfected the improved steam engine which ushered in the first industrial revolution. The premises of modern economics and the conclusions of the Club of Rome’s report were both based on the 19th century concept of industrial economy. The crises of the 1970s were a clear message that these premises were inadequate as a foundation for further social progress.

Even while the report was being written, society was in the process of rapid evolutionary changes that have led to a new model of knowledge-based service economy. This transition is characterised by an increasing shift from material resources and industrial capital to intellectual and scientific resources and human capital. The industrial worker was a proverbial cog in the wheel. The knowledge worker is a self-contained production unit, productive of new and improved ideas, processes, products and services. Human beings, not material resources, financial capital and technology, are the key to this radical transition. Based on this recognition, Peccei wrote in *The Human Quality* (1977), “It is only by developing adequately human quality and capacities all over the world that our material civilisation can be transformed and its immense potential put to good use. This is the human revolution, which is more urgent than anything else…”
While the growing importance of the service sector has been evident through much of the 20th century, its profoundest implications remain largely unrecognised even today. Society strives now to accord human beings an equivalent or greater value than money and technology, but that is at best a feeble halfway measure, which only places humanity on a par with what it creates. Development of human beings is still regarded as a means to an end, rather than an end in itself. In its early development, Giarini’s thought points to the far greater potential that is yet to be recognised.

Apart from the increasing importance of education, human and social capital formation, the dematerialisation of economy has had ecological implications, pointing to the possibility that future economic growth could become far less demanding of scarce and vulnerable environment resources. Over the last half century, this has resulted in a dramatic reduction in energy consumption per unit of GDP in OECD countries; but these energy savings have been more than offset by the dramatic increase in energy consumption by industry in developing countries.

The dematerialisation of production by the service economy is complemented by an equally or more important dematerialisation of needs. The growing centrality of services results from the fact that once basic material requirements are met, the aspiration is released for the satisfaction of higher order, non-material needs – communication, information, education, healthcare, entertainment, recreation, and culture – which are not only far less demanding of material inputs but also far less limited in their growth potential. Food consumption is subject to limits; knowledge, human relationship and enjoyment are not. Thus, the growth in relative importance of the service economy represents a progressive shift from the pursuit of physical security to the quest for human security, welfare, well-being and unending development of our individual and collective human potential. Of even greater significance are two other implications of the modern service economy that have gone largely unrecognised.

5.1 Valuing Systems and Utilisation Time

Discovering the full significance of the transition to services is the main theme of his second report to the Club of Rome, *The Limits to Certainty* (1993), co-authored with Walter R. Stahel. The report sets forth the need for a new general theoretical framework for economics to reflect fundamental changes in the nature of economic activity. “That which in the 1970s was interpreted as a problem of limits to economic growth in general, increasingly appears to be the description of the end of the great cycle of the classical Industrial Revolution. The simulations by Jay Forrester and Dennis Meadows indicate precisely this, not the end of economic growth as such, but rather the end of a certain kind of economic growth, that was based on priority and above all on hardware and machines instead of on software and organisational systems, on tangible products rather than services of every type. Of course, an important part of economic activity will always depend on tools and hardware, just as today we need agricultural products. Now, however, within most traditional industrial and agricultural sectors, service functions predominate.”
The growing contribution of services to GDP and employment is well-known, but its impact on the problem of value is still poorly understood. A major component of the service sector consists of large delivery systems, such as those related to telecommunications, transport, research, education, healthcare, banking, and research. The cost of delivering specific services through these huge systems is difficult to measure, because most of that cost consists of fixed overheads. The marginal cost of producing one more book, watch or computer can easily be computed, but not the cost of delivering an extra hour of high speed internet connection time, round-the-clock access to health maintenance facilities, or research to discover a cure for cancer. In the case of the first two, the cost of the service is largely dependent on overall usage of the system, rather than on individual transactions. In the case of research, costs might be accurately assessed or fixed in advance, but the outcome of the research and its real value cannot be known until after the fact, sometimes years or even decades after it is undertaken. The cost of a college education is even more problematic, since neither the individual delivery cost nor the value of the service to the individual customer can be easily measured.

In addition, valuing both products and services in today’s service economy presents a more fundamental challenge – the problem of utilisation time. Unlike the traditional factory that produces so many loaves of bread or reams of paper every day, ‘cost of production’ for many products today commences years before the product enters the production line or ever leaves the factory. It includes costs such as materials research, product development, and process engineering. Furthermore, the actual cost of the product may not be accurately known for months or years after the actual date of sale, since it may include additional costs such as after sales service, warranties, product liability, recycling and waste disposal. The $25 billion mortgage settlement imposed by the US government on American banks in February 2012 is an example of a cost that could never have been anticipated at the time the mortgages were originally sold. Under these circumstances, assessment of the true cost and true value of any economic activity becomes far more difficult to assess.

6. Managing Uncertainty & Human Security

But the subject that has most deeply occupied Giarini and constitutes his most original and potentially important contribution is one which by its very nature defies clear delineation and measurement – the problem of uncertainty. The most tangible result of the publication of *The Limits to Growth* was to challenge projections regarding the future progress of industrial economy. It created doubt and over subsequent decades that doubt has continued to grow, further fueled by every subsequent crisis. His experience managing big-budget industrial research projects at Battelle had taught him the importance of managing uncertainty. His operating the world’s largest insurance industry think tank taught him the difficulty of costing and pricing future events. This led him to the perception that uncertainty was central to all economic activity, indeed to life itself. After all, when we speak of human welfare and well-being, we really refer to human security – personal health and safety, assured access to basic needs, protection of our basic rights and property, employment opportunities, job security
and retirement. The fundamental objective of every economic system is to provide security to every citizen.

But he also perceived that eliminating uncertainty represented only one side of the coin. For at the same time, insecurity and uncertainty are sources of human creativity and unbounded potential for wealth creation. His writings bring out both the creative and destructive aspects of uncertainty. Uncertainty is something we seek to minimise insecurity. Uncertainty is the ultimate, ever-present reality of social life from which new economic and business potentials continuously emerge. Uncertainty is an indefinable something out of which both problems and opportunities, crises and creativity emerge. People tend to perceive uncertainty as a risk, rarely as an opportunity. Uncertainty spurred the invention of limited liability corporations, without which the remarkable economic achievements of the past two centuries would have been unthinkable. Uncertainty brought down the international financial markets and wrought the catastrophe at Fukushima.

6.1 Insuring Security

Uncertainty also has given birth to the $4+ trillion global insurance industry. But the positive contribution of insurance to human security and human welfare is incalculably greater. Insurance is an ingenious mechanism that converts uncertainty into a positive business opportunity and a precious source of human security. Insurance makes possible the entire modern health care infrastructure of the Western world, without which a bare few could afford the protection and expertise it provides now to hundreds of millions. As a result, health care is one of the world’s fastest growing industries, accounting for more than ten percent of the economy of most developed nations. A 2009 report from the US President’s Council of Economic Advisors states that extending medical insurance to uninsured Americans would boost net economic welfare by $100 billion annually. By 2007, health care insurance in Korea reached 96% of the population, whereas in India it hovers around 5 percent today, so the untapped scope is enormous. Life insurance penetration is still less than ten percent even in developed countries, but with five percent penetration India has shown that even countries with far lower national income can achieve disproportionately higher coverage.

The contribution of all types of insurance to the growth and sustenance of real estate, transportation, financial services, personal income security and countless other activities may be less perceptible but is of great significance. This accounts for the strong correlation between development of the insurance industry and overall rates of economic growth in both developed and developing countries worldwide. Over the past decade, China, which is a top ranked country in terms of both agricultural production and farm output, has put in place the world’s second largest crop insurance program to further boost crop production.

There are limits to insurability of risks that can be covered commercially by the private sector, where only the entire society through government can act effectively, but the underlying principle remains valid. Collective action to promote individual security has immense potential for raising welfare and well-being by creating complementarity between public and private risk coverage. Thus, the principle of insurance can very beneficially be extended
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to life-long education, employment, entrepreneurship, self-employment and other activities that can open up unparalleled vistas for wholesome growth and human welfare. Low levels of education are strongly correlated with low earnings and high levels of unemployment globally. A program that ensures better earning employment opportunities for those who complete specific types and levels of higher education would be a powerful means to close the skill gap, raise productive capacity and reduce unemployment.

6.2 Transforming Contradictions into Complements

Uncertainty and security are not contradictory or mutually exclusive concepts. They are really complements and the interaction between them represents a virtually unlimited source for wealth creation. Humanity creates structured arrangements to enhance security. In doing so, it imposes limits on the infinite possibilities of nature. The very creation of these structures imposes limits on what is possible, including limits on original thinking, creativity, invention, innovation and freedom of action. It defines specific roles, rules, laws, hierarchical structures, ways of life in order to create a field of certainty and security. In the process it tends to mistake the structured field for the whole reality, to focus so intently on the limited field that it loses sight of the limitless possibilities and the progressive evolutionary process that is unfolding. Society develops when it gives up this defensive posture of self-preservation with relation to the unknown and uncertain and explores how best that unchartered territory can be tapped and harnessed for its advancement. Adventurers risked their lives in search of sea routes to India. Pioneers gave up the security of the Old World for freedom from the stifling limitations of religious and social structure to found a New World. Entrepreneurs risk their capital to prove the profitability of new types of businesses. Inventors seek to transcend and improve upon the limits of nature by growing their own food, creating new objects, substances and energy sources. Original thinkers challenge the limits of established dogma and belief, venturing into the unknown in quest of wider and greater truth. Humanity’s entire historical experience confirms that present limits – limits in knowledge, power and accomplishment – inevitably give way before wider potentials. Uncertainty and the non-monetarised wider society, of which monetary economic activity constitutes a small portion, are the creative and unlimited source of humanity’s future evolution.

6.3 Transcending the Dichotomy

It is at this point the problem of wealth and welfare transcends economics and becomes one of governance, human values and moral philosophy. Here the economist becomes the humanist and world federalist. As humanity expands exploration of the unknown and uncertain, comforts and conveniences increase, but we also discover that problems and threats increase as well. In search of security, humanity created 70,000 nuclear weapons, computerised stock exchanges whose gyrations no human being can control, installed industrial robots that displace human workers and render them unemployed, while exhausting our resources and polluting the environment.

Our human mode of development seems to always confront us with this dichotomy that the quest for greater good seems to inevitably lead to greater evil. Problems and crises arise
because of our ignorant egoistic attitudes, such as the possessiveness of the rich who refuse to pay taxes and reject any responsibility for the welfare of the rest of the society or the assertiveness of the speculators who insist on their right to destabilise financial markets in search of greater profit. Humanity strives continuously to organise opportunities out of uncertainty, but does so mainly from the perspective of narrow self-interest, rather than for the benefit of humanity as a whole. We overexploit groundwater for personal gain without regard for the future. Our laws protect and empower some at the expense of others, accord rights and status to some by excluding others. These structures are the essential mechanism for organising life out of uncertainty. They are the essential means of development at one stage, but they later become the greatest obstacles, because they become rigid and fixed, base themselves on ideas and values that refuse to evolve with the changing times, like the resurrected American Tea Party pretending this is still 1776. The unregulated market structure that once so effectively released social energy through freedom now prevents that energy from expanding by more equitable distribution of the benefits. Instead it generates negative intensities – problems and conflicts that eventually lead to the destruction of those structures that refuse to evolve, as in the French Revolution, the Crash of 1929, and the two great world wars involving sovereign nation states.

The complexity of modern life compels us to transcend the dichotomy between certainty and uncertainty. When we do so we perceive that risk can by a change of view be converted into opportunity. Insurance is a social organisation that creatively relates certainty with uncertainty. Today it protects against unforeseen loss. But it has the potential to evolve into something even greater. It can in the next stage help build the society, bringing more of the uncertain areas under the protection of certainty. Uncertainty viewed from the perspective and for the benefit of all beings – without the restricting beliefs and values of the structure of narrow self-interest by which the world is now governed – can create a wider base for economics capable of generating unlimited wealth and well-being without crises. Such a change is conceivable. With the spread of education and emergence of an intelligentsia, the narrow vested interests of monarchy and aristocracy have progressively given way to a structure that is far more encompassing and more productive of human welfare and well-being. The spread of education among the once ignorant masses was formerly inconceivable. Now it is recognised as desirable and necessary. Such a change in perception regarding uncertainty in economics is possible too.

7. Future of Work

Never content with pure abstract theoretical reflections, Giarini always returns to the concrete practical problems of humanity and none today is more pressing than the future of employment. What purpose, he asks, does an economic system serve if it does not provide the most basic of all economic functions, access to the means of obtaining the essential necessities and non-essential components of a modern civilised life? Today hundreds of millions of able-bodied human beings, including more than 75 million youth, are deprived of access to gainful employment opportunities, not by their own or anyone else’s willful refusal but by the structural rigidities and blatant inequalities of an economic system that values money
more than it values human welfare. While squandering the earth’s rare natural resources, it blindly neglects the most precious and perishable of all resources, human aspirations and capabilities.

Mindful of the utter failure of unregulated markets and unsocialised systems to address this most basic need, in 1996 he authored his third report to the Club of Rome *The Employment Dilemma and The Future of Work* in collaboration with Patrick Liedtke, his successor as Secretary General and Managing Director of the Geneva Association and a member of the Club of Rome and the World Academy of Art & Science. Written at the request of the then Club of Rome President Ricardo Diez Hochleitner and originally published in Spanish, the report traces the evolution and transformation of the nature of work from the agrarian age through the industrial revolution to the modern service economy. In this report the authors discard both market and socialist philosophies in favor of a pragmatic, comprehensive, four-layered solution designed to provide basic economic security to all, while optimising the incentives for those who have the capacity and will to work and earn more. Their objective is nothing less than full employment and economic security for all.

Recognising the essential role of higher education and life-long learning in any permanent solution to the employment challenge, this led naturally to the last of the four reports on the subject of university education and continuous training, *The Double Helix* (UNESCO, 2003) written in collaboration with another Club of Rome member and WAAS Fellow, Mircea Malitza. There they examine the mismatch between the human life cycle and education, the fragmentation of specialised disciplines, and the lack of integration between education and real life challenges. The report calls for a reorganisation of education into multi-disciplinary, integrated modules that combine all the knowledge required to address real work issues. Then in 2005, Giarini turned his attention to the lengthening of the life cycle and the problem of economic security and productive security for a progressively aging but ever more healthy and active elderly population, by establishing and editing the journal European Papers on The New Welfare: the counter-aging society.

8. Globalisation and Uncertainty

The 1970s opened a challenging new chapter in the unfolding saga of globalisation, vulnerability and the management of uncertainty. The new millennium marks a continuation of that evolutionary process, confirming the fears of many who believed that human progress was on the ebb and challenging the naysayers who vigorously rejected the earlier warnings. But the recent past is not merely more of the same. Over the past four decades the world has become far more interdependent and the foci of risk and vulnerability have largely shifted from the national to the global level. The threats of financial instability, unemployment, inequality, nuclear weapons, terrorism, pollution, resource depletion and climate change are more truly global than ever before.

Today, the world is confronted by two kinds of reality linked to human nature and its social organisation: the question of power and the legitimacy of national and international institutions. Power must be placed at the service of human freedom. Institutions must promote
harmony and equity. Only then can human aspirations be fulfilled and the human propensity for destructive excesses controlled. “To what extent are the world’s economic institutions legitimate?” Giarini asks. Today acute scarcity and overflowing abundance exist side by side. It seems odd to speak of limits at a time when global financial assets exceed $216 trillion and $4 trillion circles the globe daily in search of speculative returns. The world is not suffering from shortages, but non-utilisation of precious human resources and misdirection of other capabilities away from the very points where they can make the greatest contribution and generate the greatest return for humanity.

All human achievement is founded on a bedrock of values. Values have no limit. Ultimately it is the values we choose to embrace that determine the real limits to growth. Narrow self-interest, mindless exploitation of earth, blindness to the needs of others, unbridled greed and extravagance can only take humanity so far. Our problems are of our own making and so are our opportunities. The very powers and institutions we forge to further our aims too easily become fetters that confine and enslave us. We are imprisoned by structures of our own device, simply because we refuse to open the door and walk out. Will humanity insist on clinging to broken systems out of fear to experiment, or will it have the courage to invent and innovate freer, fairer, more equitable, and more civilised arrangements for wealth creation and governance? Humanity’s ultimate challenge is not to cope with the forces of external nature or the problems of production, but rather to wrestle with and master human character and its inclinations.

Giarini has never been a prophet of doom. On the contrary, a close reading of his reports reveals an unparalleled potential for future prosperity. If the goal of economics is to truly generate prosperity and abundance for all, the knowledge can be found to accomplish it. Where others see the insecurity of uncertainty, he senses unrealised opportunities. That necessitates looking beyond secondary causes to discover the fundamental process of human development that propels social evolution. His study of both economic theory and the real economy convinced him that the theory was deficient, not humanity’s collective capacity to generate wealth for all. He has the insight and courage to look beyond the traditional boundaries and ‘scientific’ respectability of accepted concepts and econometric formulas to the vague hinterlands where economy merges in identity with the society of which it is a part and society engages in a creative interaction with the unformed potentialities of its own future. Still he gazes into the unknown, mindful of real and present dangers, but ever confident and hopeful of what will emerge.

8.1 Theory and Practice

Social theory can only be perfected in the cauldron of real life where the enormous complexity of living systems refines intellectual conception into practical strategy. Ever questioning, but never satisfied by the answers he himself could derive, he has the good sense and humility to know how much more there is to be known. His thought points compellingly to the unchartered boundaries of human social potential. What remains is for a society, even a community, to come forward to break out of the straight-jacket of arbitrary rules and constricting institutions to fully harness the enormous creative potential of its human and
social capital. Full employment, equitable income distribution, life-long learning, ecological sustainability, welfare and well-being are the objectives. Freedom, harmony and equality are the values. An endless development of human capacity is the means. Unparalleled prosperity will be the result.

Economic evolution, whether in theory or practice, is inseparable from cultural evolution. That inevitably led Giarini to ponder the ultimate implications of a world in which scientific determinism and human choice seem to be juxtaposed in perpetual conflict. Is it possible to imagine a culture which reconciles social order and human security with the creative freedom to continuously evolve by exploring and engaging the unknown which contains the ultimate mystery of life? That is the challenge which now confronts science and humanity.

Notes

1. Do bombs perhaps have a meaning?

“Mum, why do we have to die?”

It was late morning on 10th June, 1944. Bombs were falling all around the block where I lived on the fourth floor in via Limitanea in Trieste. Across the street there was a small coal factory, the chimney of which had been bombarded by the planes.

Air attacks were often announced, even during the night. The first few times we went down into the building’s cellar that had been reinforced with large beams which supported the ceiling in order to better resist the bombardments. Usually the planes simply flew over the city on their way to unload their cargo in Germany or Austria. We had become used to staying in the flat despite the air raid sirens but this time Trieste was the actual target.

That day almost ten bombs fell within two hundred metres, some actually striking the factory while two or three struck some houses, just along the avenue into which via Limitanea ran. One bomb fell a metre from the main entrance to our building. It created a small crater two metres wide and a little less deep.

They were small bombs. If they did not make a direct hit on one’s head or on the rooftops they made a great din causing a noise wave that resulted in the window panes and frames being shattered to smithereens. The buildings themselves, however, remained standing. The bomb that had ended up in front of the door of our building allowed the children in our neighbourhood to make a fantastic discovery: it had revealed a soil made of a clay type of earth, almost a modelling dough like the one that children use today to mould into little men and animals. It was a true gift from heaven to be enjoyed in an age in which it was not possible to even imagine consumerism.

Unfortunately, however, that bombardment had also caused the death of two people. My father was at work in his office located in the centre of the city, little more than twenty minutes away on foot.

“Mamma, why do we have to die?” I was with my mother in front of the entrance door to the apartment, and between the whistling of the bombs, the explosions, the shaking of the walls and ground, and above all the noise of the windows crashing to the ground, covering it with a layer of glass fragments, my question – that I have never forgotten – had no reply.
I do not remember being particularly frightened or distressed. I was told later that a child of 8 in such a situation does not fully realise the danger nor the possible consequences. That is probable. And yet I still have the memory – or perhaps could it be a mirage? A feeling of profound amazement that such a thing could have happened. What reason was there, what logic? Why, why, why? Actually the question was not dictated by fear, but rather by a strong curiosity. Unless, as the psychoanalysts say, my reaction, or my memory, was my subconscious strategy for resisting an unbearable situation.

We went down the stairs to the basement, raising the windows with their frames on every floor, in the middle of a devil of confusion, yet without incurring even a scratch. In the whole of our five storey building no one had been wounded. The bombardment ended about half an hour later, and then my father came home, unhurt, from his office. I remember that in the oven in the kitchen – where, as in the old days, there still was a “spargher”, i.e. a coal-using stove in stone and brick – there was a cake covered in a deep layer of glass shards and dust, which I was sad to see. We had learnt that every time the air raid alarm sounded we had to hurry down to safety.

Sometimes, a second vivid memory from a few weeks later comes to mind. I was on the number 5 tram that went down towards the centre, when another passenger suddenly covered my eyes with his hands. We were passing in front of a car repair centre where the Germans had hung some prisoners as a reprisal against an attack carried out by members of the Resistance the day before. I am still not sure today if I would have wanted to see them. However, I had no other opportunities to personally witness dramatic events at a time and in an area where violence broke every record including the most disastrous ones.

These two events absolutely convinced me of man’s capacity for self-harm, something I have always believed to be not only perfidious, but, what is worse, stupid.

“Why, why?”

2. Cultural Trauma in the United States

“What is the nature of human nature? You must try to answer this question, otherwise my course is pointless.”

It was thus that Bob Montgomery, finance lecturer at the University of Texas in Austin, began his course. He continued for a whole hour philosophizing on this subject, offering examples of the most diverse behaviours. He and Professor Airey who taught sociology in the same department had been pupils of Thorstein Veblen who, many years earlier, had written *The Theory of the Leisure Class*. It was a period when the University of Chicago, which would later include Milton Friedman among its teachers, was home to an American style school of social-democratic progressivist tendency. “What do human beings want, what is their nature?” – “They want power” was the short answer of the pessimistic Airey. “They want prestige,” asserted Montgomery, the optimist. In his youth he had been a member of a group of flyers who one day flew under a bridge. “You see,” said Montgomery, “we all want to be admired, to gain prestige, at any price”.

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Two days later the second lecture took place in the same tone. This time Bob Montgomery asked the students what kind of work they would want to find after their university studies. A good half of them would have been content to find a secure job in a public institution. The professor then commented that at the time of his youth no one would have even considered such a possibility.

I was furious. In the United States, the homeland of modern capitalism, I had chosen a certain number of courses that were taught by top professors like Professor Montgomery in order to penetrate deep into the secrets of finance. The title of his class was “Corporate Finance”. Coming from Europe I hadn’t thought that in Texas, instead of beginning with a talk on money, they would have engaged me in conversation about human nature. What? Was not Europe the source and origin of every doctrine on every form of analysis of the human character, from humanism to psychoanalysis? We already knew everything about this kind of problem, right? There was no need to look elsewhere. In Europe these subjects were in the air that we breathed, to the point that we had had almost enough of them. In the United States, therefore, I was seeking fresh air, not too contaminated by the centuries-old European history. I wanted to hear immediately of soundness, of practicality. As a European I did not need them to talk to me about human nature. After those two lessons I felt like a fish that wanted to approach the shore but instead went increasingly deeper into the ocean. I was angry and upset, that’s how I was.

Finally, during the third lesson the professor began to deal with what, according to me, should have been the only topic of his class, the nature and use of money. But it was still not the technical course that I had desired. One day, at the time of McCarthy, a pretty extreme right-wing man entered the lecture room smiling: “Today I had a visit from the FBI who asked me if I knew any Communists”. Laughing, he went on: “I told them I did” – ‘Who, then?’ the two investigators asked. ‘You’ was the answer.

I remembered that when I was passing through customs a month earlier, they had asked me if I had any Communist friends. I answered that I did not, and in fact I did not. But I did not tell them that in the University of Trieste the professor of constitutional law was a Communist (he was to abandon the Party later at the time of the Hungarian Revolution). Moreover, my Economics professor had worked in the Fascist Republic at the end of the war. Strangely enough they were both excellent teachers from whom I learnt a great deal. Clearly in Europe there was a slightly different kind of liberty.

For four whole months I continued to follow Bob Montgomery and his course, looking for possible cracks. For me it was a brainwashing experience. An Italian from Trieste, I ended up adding another root to my cultural being, becoming a Texan American. The trauma had been transformed first into astonishment and then into an opening of my mind. Once that semester course was over I began to wonder what Europe really was, apart from a certain number of stereotypes that I had had and which now seemed completely insufficient for an understanding of where I came from. For this reason and unlike many students who like me had received a Fulbright grant and remained in the United States, I was determined to return to Europe, not out of homesickness but simply to begin to get to know it again.
Bob Montgomery was not only a teacher. As a young man he had been a farmer like his family members but had quarrelled with his father. It was not difficult to imagine him catching the last coach from his village to go to teach somewhere for thirty dollars a month. Subsequently, he had become an aide to President Roosevelt for whom he had written several speeches. As Head of the United States Military Strategy Committee during the Second World War, he had contributed to the study of the weak points of the principal transportation routes in Europe, and this had helped in directing bombardments. I doubt if he dealt with the small coal factory in Trieste.

The whole economics department was at an excellent level and very stimulating. The Department head was an interesting character, a major specialist in the industrial conflicts of the United States. He had obtained his post without having a PhD but only a Master’s. He was a unique case. It was said that he had written an economics thesis on Ricardo and then had refused its ratification maintaining that the ratification committee was not competent to issue the final certification. What an example!

One day, needing a certificate of my university results, and after the fateful four months came to an end, I went to ask Bob Montgomery for it. He wrote that I had been among the top three percent of all the students he had ever had in his career. Astonished, I looked him straight in the eye and said: “I don’t believe it’s true”. He answered me, “Maybe not, but now you’ll make the effort to deserve it.” Thank you, Professor Montgomery, I’ve tried.

3. Glances at Sociology: A False Start

“There was an Indian tribe in Colorado that lived in the shelter of a mountain. A river surrounded the village and protected it from wild animals. A single ford, easy to keep a watch over, allowed one to cross the river to go hunting. Another place, also close to the river, was dedicated to the rituals to ancestors. Research has shown that the river has changed its course over several decades and that the place of devotion was exactly at the point of the ancient ford.”

This was a piece of history presented as an introduction to the sociology course in order to demonstrate the subtle link that every human activity unites myth and reality – a reality that allows survival to become, with the passage of time, a symbol. When reality changes the symbol can continue to exist independently because it contains within itself the customs and the emotions of past generations. Myths and reality nourish the two sides of the human mind, sometimes overlapping and sometimes entering into conflict with each other. And so I was introduced to the reality of myth in every human society, to its ambiguities and its contrasts and its role as a bringer of balance in behaviour.

It must also be said that I found myself in the very cradle of the ideas of Thorstein Veblen who, in *The Theory of the Leisure Class*, has made an in depth study of the nature of intellectuals in our society describing them as “evolved” substitutes for the wizards and “shamans” of primitive societies. We needed them for the same reason: to interpret what the common mortal struggled to understand. It takes special forms, sometimes an esoteric language, to perform this role.
This is a role that I still often find today in my colleagues (economists) and in other advisors in industry, finance and even in public authorities. Sometimes, they make mistakes, but their main function is to reassure. There are enough uncertainties in every human activity for their function to be taken into consideration in any kind of circumstance. In moderation, however. When intellectuals and experts of whatever alignment take themselves too seriously, they can and do cause serious or less serious trouble. It is necessary, therefore, to make use of them prudently and in moderation. In the increasingly complex modern world, they are actually very rarely able to anticipate important events. In fact the more important an event is, whether economic or otherwise, the more unpredictable it becomes.

Nevertheless, however defective an instrument is and even when the perfect one does not exist, it has to be adapted to. We must, therefore, learn to calculate with the help of intellectual intermediaries of every kind. This does not mean, however, avoiding our ultimate responsibility for everything that concerns and depends on us. How often at the Battelle Memorial Institute did I later discover how promoters or clients would sometimes nurse a secret hope of avoiding a decision, thereby entrusting it with others!

This then was my humour-filled “veblenian” introduction to sociology and almost to psychoanalysis in order to better observe or discover myths, reality and the judgements of experts in the subtle game that they suggest little by little.

Carried along by the wave of this enthusiasm, back in Europe I held an introductory sociology course in a school for social workers in Trieste in 1967. I discovered that the “teacher” can gain even more from a course than the “learners”. One has to get one’s ideas clear and put them in order so as to be able to explain them in an intelligible manner. At the beginning one has to learn everything. So, I thank my students.

My last adventure in this field was my participation in the World Congress of Sociology in 1959 at Stresa. There were hundreds of “experts”. The delegation that came from Moscow was numerous and the Marxist sociologists always moved in serried ranks. The same applied to a group of Jesuits from whom I heard the following reflection: “Look at those poor Communists, they’re just like us but they don’t even have the hope of going to Paradise.” I also spent a lot of time conversing with a defrocked priest who was riddled with moral problems.

The Cold War formed the backdrop to this Congress where the class war was discussed a great deal. I prepared to intervene in order to suggest that it should be studied essentially as a struggle between the governing classes because as such it did not concern only a Marxist or anti-Marxist vision of society. Marx after all had married an aristocrat and was a friend of Engels who was from a “good family”.

Just think of all the Bin Ladens of the earth who are not always so fanatical fortunately. After all, many of the “revolutionaries” of May ’68 went on to occupy prominent positions, and thanks to the events of that period, the revolutionaries subsequently made use of them to build their careers in the most traditional manner.

I raised my hand, but the chairman of that session, seeing such a young man, did not pass the floor to me and I abandoned sociology forever.
1. First Full Time Work

“You are an over performer, sir.” This was the verdict of an “employment psychologist” who had subjected me to a series of tests in the beginning of November 1959 in via della Moscova in Milan. I particularly remember the discussion concerning “Rorschach’s inkblot”. They show you a sheet of paper folded in two. Some ink is poured on one side and then the two sides are closed together so as to obtain a mirror image blot on the two halves of the paper. In that blot I had recognised the threatening atmosphere of the German Olympus, Valhalla, that serves as the background to Wagner’s epic, Nibelungen. I had described a large cave with Wotan, the head of the gods, and the Valkyrie. The particular inspiration for the account came to me from a comic strip that had just come out at that time, blacker and less amusing than Asterix which would be introduced some decades later, but nevertheless, entertaining enough to stimulate my imagination.

The psychologist had pronounced those words in a rather sharp tone, looking at me a little askance. Was the lack of understanding that had occurred during my meeting with another psychologist concerning the kilo of hay and the kilo of iron about to be repeated? Fortunately not. A few days later I received a letter of appointment from Montecatini whose foreign sales headquarters was just across the road. A short time later, on 15th November, I began my first official job.

At that time, Montecatini was a great Italian chemistry firm. It had already existed for some time and incorporated numerous mining businesses some traces of which still remain today: abandoned fields and villages in South East Sardinia that compete with the ghost towns of the Far West of the United States and elsewhere.

Like many large companies it had built up part of its power in the first half of the XX century, making the most of the patent for manufacturing nitric acid.

At that time, Montecatini dreamt of scoring a new success similar to those produced by the large European and American chemical companies when they had created new products such as nylon (“polyamide” in 1938), polyester, acrylic fibres, PVC (Polyvinyl Chloride), polyethylene and others. By being the first on the market with these innovations – most of them came out in the twenty years following the Second World War – a fortune could be
made, given that the margin between the manufacturing price per kilo and the sale price could be from one to ten or even more.

Obviously, the cost of research had to be taken into account. They had to be certain that new products had been tested and safe enough for wide industrial use, as much at the final consumer level as, and even more so, at the intermediate transformation level. It was in fact necessary to be able to convert these materials into fibres, sheets, cups for yoghurt, containers, bags of every kind, suited to their normal function. On the one hand these new products had allowed du Pont de Nemours, Pechiney-Saint Gobain, ICI and Courtauld, BASF and Monsanto to become great chemical industries, a similar phenomenon partially repeated over the last fifteen years in the computer and telephone sectors. On the other hand there was, for various reasons, no lack of failures. Some manufacturing processes did not deliver the hoped for results at Montecatini (for example, in the case of the passage from acetylene to ethylene) and often the cause of the flop may have pertained to managerial incompetence as well as a lack of technical experience.

Several projects fell into the trap caused by the fact that the time required for the development of a new product was underestimated. This time runs from the moment of conception in the research laboratory to when the substance itself is reproduced on an industrial scale thousands, even millions, of times. This passage, which from the outside was, in the 1950s, sometimes considered important but not essential, is actually determining and in certain cases can constitute up to 90% of the costs of a research programme. In the period when I was involved, even the specialists in many large chemical companies had to toil hard to avoid mistakes, even to the point at times of having to bear heavy financial consequences.

2. Working Methods

That year, 1959, Montecatini was living its dream the main element of which was a new synthetic material called polypropylene (the basis for products under various names such as Moplen, Moplefan, etc.). Essentially this product was meant to improve the quality and performance of other already existing synthetic products, for example resistance to high temperatures. An anecdote was going around, it probably was not true but it helps us understand the enthusiasm generated by the prospect of developing polypropylene: it was said that the President of du Pont de Nemours had come in person to Milan to suggest a collaboration and that after waiting for a long time in the waiting room he had left without having achieved anything.

In any event, it is precisely due to polypropylene that I was able to get my employment in the chemical industry off to a good start. Actually the company management had decided to form a leading group of completely new, young people, and subsequently send them, for a whole year, to strengthen the branches around the world and to promote the new material. This project was repeated for nine more years, nurturing youth’s hopes. That this was a group of young people prepared to fight is proven by the composition of the nine member group among which I was one. There was a prince, a marquis, and a baron from the greatest lineage in Italy. My credentials were based on my American experience and probably also on my “overpaid” activities. Among us there were Giorgio Schejola, holder of Doctorate
degrees in Philosophy and Economics, descendant of an excellent Milanese family, and Angelo Semeraro, jurist from the land of the “trulli” in Puglia, who was endowed with a great musical culture and a warm smile. They would both become my close friends and many years later Giorgio Schejola would become Director General of Montedison in Paris.

I must confess that when I joined Montecatini I did not have a very clear idea of what “chemical industry” meant. I had studied chemistry in high school at Trieste but I did not know how to explain exactly what businesses, like the one to which I was committing myself, actually did. In any event it was prestigious in that golden age of the chemistry sector.

My ignorance began to be dispelled contemporarily with the chemistry courses connected to the work of the group by my repeated visits to all the Italian factories, at the rhythm of eight hours a day. I also spent a lot of time in the export management offices. It was in via della Moscova that I first learnt what it means to be zealous.

Although work officially ended at around five in the afternoon we often remained till seven or eight in the evening. Sometimes we really did have work to do, but often we waited till the big chief left and then left after him. We did not let him see our empty stations.

There were a few colleagues about whom I maliciously remarked: they had to remain till nine in the evening because they had to do their work first time in the morning, and in the afternoon undo what they had done in the morning. They only had the evening left to finish the day’s real work. Clearly this was pretty nasty on my part, but subsequently, during my experiences in many other countries I came across this way of working. Of course I was an “overperformer”.

3. The Promotion of Chemical Products in Switzerland

It was in September 1960 that I was sent to a branch abroad. I thought that they would send me to New York, instead I was sent, more modestly, to Basle, Switzerland. I invested what little money I had, together with a considerable loan, in a car, and left for my new “registration” point. In the twelve months that followed I travelled no less than 36,000 kilometres on almost every road in Switzerland, apart from those in the mountains. These I came to know about later. The journeys were made with the aim of presenting Montecatini products to thousands of small, medium and large businesses. I was reimbursed for every kilometre and this helped me pay off my debt.

My first meeting with German Switzerland was not easy. My German, superficially learnt at secondary school, was pretty rough. In Basle they spoke the local dialect of the kind that exists in every corner of Switzerland. My learning therefore came about through “immersion” so to speak. I very quickly learned that the inhabitants of Basle, a border people, had a sweet/sour sense of humour, similar to that of the inhabitants of Trieste. One day in a cafe-restaurant I asked, in German of course, a man at a nearby table if I could take the newspaper that was lying next to him. “Of course,” he replied, “but pay attention, the sheet of paper is white, but the letters are in black…” Happy with the reply, I enjoyed eating the dish of “jambolaya” that I had ordered, while reading the black letters, naturally.
One cannot live in Basle for a year without remembering the unique spectacle of its Carnival. One evening in February someone told me “Tomorrow we get up at four in the morning and go out into the street. It’s the moment of the “Morgenstreich”, the morning drum roll”. And so it was, except that there were hundreds of drums, lined up in rows of tens or twenties, each in a company completed by an equal number of flautists. There were, and every year there still are, tens of these companies that take turns at playing a slow march.

They crisscross the city many times for three days and three nights, stopping every so often to have “Mehlsuppe”, a flour based soup cooked till it becomes dark. Every company wears a costume prepared during the year with characteristic masks of ancient origin, probably linked to wood and mountain spirits. In the Alps there are similar sculptures all over Switzerland, from East to West, almost as if there were a wish to propitiate the evil spirits. On hearing that music I understood the origin of the preparatory exercises I had heard coming from many old houses during the winter. It was the companies performing their rehearsals.

Next to these groups there is the “Guggel Musik”. At first they sound like little jazz orchestras that deliberately play badly. All this for three days. Then there are the usual masks and small groups of twos and threes who go around with large posters illuminated from within, on which appear caricatures of politicians, local celebrities or the reminder of local events that have marked the year. They enter and leave cafes and restaurants declaiming their arguments, often in the form of poems. All of this in the Basle dialect. I felt like Asterix who, confronted by the Romans, repeatedly declared “These Romans really are mad”. I thought “these inhabitants of Basle, these Swiss really are mad”. They, as if it was not already enough, had the habit of throwing hundreds of oranges from the windows of houses and especially of offices, at the groups that paraded past. The banking institutions were particularly given to this.

It was not the Venice Carnival, but from another point of view it was equally impressive. I learned why in their daily lives the inhabitants of Basle were more relaxed and entertaining than those of the other Swiss cantons. Once a year they let themselves go together in a manner I have rarely seen. Even in New Orleans, the collective madness does not last three days and three nights in a row.

Every Swiss canton really does have its own tradition. The Basle Carnival is almost unknown abroad, perhaps because it is not “serious” enough, and especially because in German-speaking Switzerland humour is concentrated on the facts and the personalities of daily life. It is a humour that, just between us, would be out of place in an undemocratic regime. Here then is an export product that all those who would like to make the democratic process of some regimes more easy, should put forward.

The Basle Carnival didn’t take away the seriousness of working practices. I still remember the day I phoned a business seeking an appointment. I had asked the person at the other end of the line to allow me to meet them as early as possible in the morning. He answered, “I’m very sorry but I deal with the post first thing in the morning, so I can’t see you before 7.30”. It certainly was not the timetable used in Milan or Geneva, nor did I know if such a response would be possible that day, even in Basle or Zurich.
The Basle office of Montecatini had been entrusted to a Dr. Ramandi who gave carte blanche to a blonde forty year old Zurich lady endowed with a strong sense of command. She basically dealt with the sales side of the business and allowed me to deal with my own task which was to contribute to the research on polypropylene, and whenever possible to suggest all the other chemical products available.

And so it was that I had my first experience in sales strategy in a difficult situation. At a certain point in fact there was a scarcity of an important base product for paints (titanium dioxide). In the market there were many competitors in several countries, but none of them were able to deliver in accordance with the established agreements, given the seller’s logic to think (and this is human) “first we sell and then we’ll see”. On the one hand a company chose to increase prices beyond the level provided for in the existing contracts, with the risk of becoming bogged down in legal wranglings, but with a considerable increase in profits. On the other a competitor invited all their customers to a hotel where they explained the situation, asking each to give up a small part of their order while suggesting they negotiate the sharing out of the existing reserves of the product. Here is a school project that I believe should be discussed in management courses. Each one has the task of drawing conclusions and finding the best balance between the short and long terms. If one wanted one could even talk of ethics and of how to instil loyalty in customers.

On the subject of polypropylene I worked alongside a chemical engineer who came from the Italian laboratory where the first samples of the new synthetic material had been produced. Together with him I inspected hundreds of small and medium businesses in German speaking Switzerland. During this process I also examined dozens of small hotels, preferring games of skittles. It was not only the pleasure of being in such simple places in so-called deep Switzerland, but also that of being almost always welcomed with a handshake from the owner. The names of these places were, and still are “All’Orso”, “All’Aquila”, “Alla Stella d’Oro”, “Al Leone”, certainly not Michelin Guide but with a good clean smell and walls lined with sometimes very old wood.

My chemistry expert was very competent and was also a good travelling companion except for this: he was an avowed fascist, to the point of confessing to me that at home in Italy he had a gun. One day I ended up asking what he and his friends had against the Jews. He, who spat on priests, recounted the story of deicide. I looked him straight into his eyes and he lowered them. After that we never discussed the subject again. This reminds me of another Montecatini colleague in Milan, one who had been in the Resistance. He too hinted that he had a weapon at home “for the cases in which…”. Dangerous people these Italians are.

With regard to polypropylene we distributed fibre, film, or sheet samples everywhere, as well as granules for extrusions. We were extremely unfortunate. One out of three times on opening a box we discovered that the products had not been chemically well stabilised and had turned into a paste or a stinking powder. Moreover we were faced with competition from an American factory that contested Montecatini’s patent and had begun to market polypropylene. It was the good Ramandi who dealt with the legal aspect of this affair while at the
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same time in Milan the President of Montecatini was declaring that everything was going very well. There must have been problems of communication within the corporation.

In any case many tests were carried out in the simplest and most efficient manner. When we told a manufacturer of small bags that polypropylene was very resistant to oil our listener took the sheets we gave him, folded them as required, put oil inside and placed the whole package on an outside window sill. He then told us to come back in a month and then wished us a good journey. Simple, no?

Sometimes we also found ourselves involved in very unpleasant situations such as the day when, in a spinning mill, they took our thread to put it into a machine that should have combined it with a cotton thread. The rubbing of the machine generated heat resulting in the evaporation of our polypropylene thus showing it to be not yet chemically stabilised. An easy way to understand defect in the new product but one where the solution required an in-depth study by means of expensive research.

Between the delay in finalising the new plastic material, the legal wranglings with the American competitor and various other difficulties, at the end of my year in Basle, Montecatini’s success proved to be increasingly modest. About that time, just a little later, Italy had nationalised electricity production, essentially represented by the Edison company. The company received substantial compensation from the State and so things were once more in order and Montecatini finally became Montedison.

4. Competition Problems

The constant temptation and the dream of every entrepreneur is to be able to have the greatest freedom and control over the market. One day, while moderating a debate among about thirty senior business managers, I remember asking them to indicate, in order of precedence, what they considered to be their greatest problem. In the first place they placed competition followed by taxes and State intervention, which were way behind.

In every field agreements of all kinds intended to reduce the effects of instability deriving from competition come into play in one of the fields in which human imagination is at its most fervid and varied. It follows that there is also legislation to protect market agreements and understandings and cartels subject to various restrictions that exist in every industrialised country. In the interests of the consumers and in order to stimulate innovation there are laws in place almost everywhere intended to guarantee a good level of competition.

Sometimes we witness the excessive demonisation of such agreements, even when they appear well structured which was the case with Fertilex SpA. On my return to Milan I was assigned to the office of the senior managers who had to take part in the creation of this European enterprise located in Switzerland. Means were sought for containing the volatility of prices in the fertiliser sector. This is a product that costs little in relation to its weight and consequently its warehousing costs as much as its manufacturing costs, to say nothing of its packaging. Whether made of jute or plastic, the product was worth a great deal in some poor countries where the bags were used to make shirts or cloaks by simply cutting the corners to insert the arms.
It only took a period of rain that went on for one or two weeks for it to become difficult to know where to store all those fertilisers that could not be scattered around since there was the risk that they would pour out straight into the drains.

At that time the world market was very much conditioned by China since that country bought several million tons of fertilisers, equivalent to between 10 and 20% of international trade. The “Chinese” price, negotiated in different ways over about two months every year in Beijing, ended up having a great influence on the whole market. Even the East Germans were interested. Communications between them and some European companies were carried out by means of telex messages sent to West Berlin. There, an agent had his colleagues in the German Democratic Republic to the East read these messages and then he returned to the West with the text in his pocket. There is nothing as good as trade for creating unity. And, it must be remembered this was in 1962-63, at the heights of the Cold War.

Fertilex, therefore was founded in an attempt to reduce volatility of prices which, apart from anything else, discouraged investments. During the meetings held with the purpose of creating this organisation I had the pleasure, “historical” in a manner of speaking, of meeting an elderly German jurist who, in the period between the two World Wars, had participated in the foundation of the French-German agreement in the coal and steel sector, the “Montana Union”. This did not prevent the outbreak of the Second World War. However, in a sense the project was given new life after the conflict when, driven by Jean Monnet, the European Coal and Steel Community (ECSC) was founded.

News of the creation of Fertilex was broadcast throughout the world through the specialist press and the economic press in general. A great deal of information was given out on everything, in every sense. Most by far of what was published, however, was inaccurate. On this occasion I understood that in the modern world the best way of being protected from indiscreet attention is not in keeping something a secret but providing excess information. With the internet and all the rest this, today, is increasingly easier and more usual. It is not the quantity of information that counts, but the capacity for distinguishing and selecting it.

This capacity does not appear to me to be at the centre of day to day preoccupations; it should be the case for every educational undertaking.

With the worldwide spread of the news of the creation of Fertilex, prices at first were consolidated. The objective had been partly achieved. Then came the crisis. Everyone everywhere was convinced that prices were now guaranteed and under control, and so many new fertiliser factories opened up their doors. Due to the excessive supply there was a return to the starting point and prices fell. The agreement had essentially served merely to move the volatility cycles, not to eliminate them once and for all. Here was an interesting economic and commercial experience.

I drew a number of lessons from my four years of work at Zurich in this sector. I was able to observe that all the service operations (warehousing, transport, distribution and the spreading) accounted for more than two thirds of the total cost of these fertilisers. The logistics problems were more important than the production ones. The warehousing of fertilisers
had to be carried out with due attention paid to avoiding damp, or worse still, rain, otherwise
the product would be compacted to the point of becoming a block of unusable cement. It also
appeared to me that when a market becomes so huge it only takes a 1% downturn in forecast
sales in a very short period (a week) to cause serious problems of vulnerability or volatility
in the balance of prices that can then decrease or increase by 50% or more.

Among my tasks was that of producing estimates and keeping accounts of fertiliser pro-
duction capacity for the whole world. It was not so simple. First of all because the official
figures were not necessarily correct. When a scarcity of products occurred it could be found
that products that existed in theory were in fact not always available. There was also a very
serious technical problem. Many of the large intermediate chemicals constitute what in other
sectors are called “fatal” production. This means that the process, once begun, cannot be
stopped like you might turn off a tap. The process cannot, must not, be halted except in the
case of repairs, controls, checks or maintenance of the tanks in which the chemical reactions
take place. It is like one is making soup with various ingredients and once the right heat and
mix of the raw materials used have been reached, the whole can no longer be interrupted. For
every startup, days, weeks, sometimes even a whole month is required.

What then is meant by “production capacity”? Total capacity over twelve months (impos-
sible to obtain)? That which takes account of the average time needed to start a production
cycle? And what about postponements, whether intended or due to accidents?

A margin existed, so that a figure on capacity could vary – just like weather forecasts –
according to several factors some of which slipped control. Even today I am a little suspicious
when I read the statistics on the level at which production capacity is exploited especially
when it is claimed that this is used as the basis for productivity calculations. In the fertiliser
sector final productivity, the relationship between costs and performance went well beyond
the narrow analysis of production capacity that formed only one among the many factors, all
characterised by a degree of uncertainty, and in which the service functions were dominant.

This experience of mine ended in 1965. At the end of the summer I got employed at the
Battelle Institute in Geneva. Farewell, Zurich and fertilisers!
— Chapter 3 —

The Battle for Europe

“Ah, the fervent revolutionary!” exclaimed Henri Frenay, smiling. It was a summer day in 1962, and I was seated on an English style leather sofa in the rather dark living room of his apartment in the centre of Paris. I had come to confirm to him that a few months earlier I had married the secretary of the European Federalist Movement of Geneva. What could be better than to share an ideal, work together, have the same plans in life, besides having a family and children?

As a couple we were not of the calibre of Monsieur and Madame Curie, nor of that possessed by revolutionary couples written about in history books, but we had a certain style. While acknowledging that I had ambitions, I considered myself to be fairly moderate and a little inclined to demagogy. In order to convince others, I first had to believe in myself. So, I checked everything.

My wife was a fairly radical type. I hoped that she would help me not only as a collaborator but also as a stimulus. She worked as a self-employed professional conference interpreter and was able to travel a great deal and choose from many work offers, given that the market was not as crowded as it is today.

Henri Frenay, the head of the “Combat” Movement, one of the greatest behind the French internal resistance during the Second World War, had contributed to the development of the European Union of Federalists. Their first meeting had taken place in 1946 in Hertenstein in the heart of William Tell’s Switzerland, and it had been followed by a constitutive assembly of the movement in Paris, in December 1946. On that occasion, Alexander Marc became the first Secretary General and Henri Brugmans, the first President. At the second Congress of the UEF in Rome in 1948 Henri Frenay succeeded him in this post.

The first Congress of the Union of European Federalists was organized in Montreux and prepared the ground for the great Congress of 1948 at Aja which launched the European Movement. It is important to remember that, thanks to the effort of a Swiss, Ernst Schenk, for the first time after the conflict, Germans were also invited to Montreux so as to underline the fact that the matter in hand was not only one of reconstruction but also, and above all, of building a Europe on new bases. Besides, even in Nazi Germany a democratic and federalist light had appeared, such as in the case of the White Rose group and the mayor of Cologne. This of course had been quickly extinguished by those in power.

On that day in 1962, Henri Frenay, the elderly founder of the Union of European Federalists and long time member of the executive Committee, was examining me under
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every aspect, while the situation was somewhat delicate. The Federalist movement was in crisis and had lost some of its influence. In the fifties it had started off in great style with several tens of thousands of members and activists throughout Europe but, after the European Defence Community (EDC) fiasco it had been split into two “internationals”.

One group was more moderate and aimed at continuing along the line of persuasion among the traditional political parties in each country. This group included the majority of the federalists and “Europeists” from the Nordic and Germanic countries under the banner of AEF (Action Européenne Fédéraliste). Faced with the failure of the EDC the other group was highly critical of the exclusive powers of the Nation-States. This was the European Federalist Movement (EFM), and to clearly underline its vocation and modus operandi it had abolished national hierarchies from its structure, only saving some coordinating bodies. The Secretariat in Paris was in direct contact with every region in which there were associates.

In 1962 the EFM still had, roughly speaking, ten thousand members; its headquarters was in rue de l’Arcade, subsequently transferred to rue de Trévise, but basically it could no longer count on money or financing of any kind apart from the membership fees and these were fairly modest.

The last Secretary General, André Delmas, a great Europeist coming from the Public Institution unions, succeeded another great figure from the Italian Resistance, Umberto Usellini. The latter had no longer been able to carry out that task and had decided to hand over the reins.

Henri Frenay’s reference to my wife was not casual: it was to her that I owed, indirectly, my candidacy to that post, for which there was no possibility of a salary, at a time of crisis for the federalist movements. I was expected to leave my work in the chemical industry and go to Paris to carry out my functions, hoping to find some way of financing all the activities. My personal survival was guaranteed by my wife’s employment opportunities.

I accepted the post but I kept my employment in Zurich. I explained my intentions clearly. If I had left immediately for Paris I would have spent all my time looking for money. It seemed to me that it would be more useful to devote myself to the Movement’s activities in the evenings, during the weekends and on any days I had free time for my federalist activities.

I was looked on with scepticism but there was no other choice, and so it was that this trial temporary commitment lasted seven years. There was a further complication. My wife was finding me too moderate. Having seen the consequences of my commitment, a year later she chose to have children. It was not difficult to understand her. In fact in 1964 alone, I travelled fifty two weekends out of fifty two, all over Europe. I left directly from the office on Friday evening, then from Zurich station, by second class train, sometimes in a couchette, if there was one, and often I returned directly to the office on Monday, after having been to Graz in Austria, or Rennes in Brittany, or Lubeck in Germany. On average I went to Paris twice a month. At rue de Trévise there was a poorly paid, nice young secretary, Yvonne, who coped as best as she could. In Zurich I went two or three times a week to eat the dish of the day in a restaurant between Bahnhofstrasse and Niederdorf. I would be accompanied by an hourly
paid secretary, first one from Ticino, and later by a German Swiss, to whom I dictated letters or other texts which they delivered to me the next day.

Over the years I began to gradually reduce this pace, waiting in vain for an opportunity of having my work “professionalised”. Given the circumstances however, the initial scepticism had been replaced by the following comment: “If it works so well why change it?” There was also the fact that even with all the expenses, I was costing less than 1,000 Swiss francs a month (a little more than 1,000 euros today).

All things considered it was well worth having this experience. However, considerations concerning my wife’s work capacity apart, how is it that I came to be visiting Henri Frenay? That meeting greatly inspired me. I was inspired by his nobility of thought, kindness, evident rectitude and the determination of his personality. As we took leave of each other, he greeted me with the classic “Good luck and onward to the goal!”

1. A European in Texas

I began to become “European” before being federalist, in 1955-56 in Texas, during my university stay in Austin. There were 1,800 foreign students there. Among these the Europeans of every nationality formed a minority of less than 600. I participated in the activities of the foreign student organisation of which in fact I became vice-president. It was the maximum to which I could aspire provided I was not considered to be “only” an Italian.

Much more dramatic and at the same time comic was the time they asked me to hold a conference in the lecture hall on the initiatives introduced for the economic integration of Europe. The ECSC (European Coal and Steel Community) had gone into operation in 1952. After France had rejected the EDC (European Defence Community) in 1954 the European relaunch was introduced through the Messina conference of June 1955, after which the governments of the six countries began to prepare the treaties for the European Economic Community and the European Atomic Energy Community. At that time I knew absolutely nothing about this and with only two days' warning I had to speak in public on all of it.

I set about reading the political and economic magazines looking for references. I concentrated on my own personal and limited perception of what Europeans had in common. Before me I had a class made up mainly of girls who, in keeping with the American fashion of the day wore white thick cotton socks that stopped below the knee. I told them that I had never seen girls in any European country wearing socks like those. A buzz wound its way around the lecture hall and my entire female public tried as hard as they could to hide the lower part of their legs under the seats. It was amusing, but I felt ashamed for having had recourse to such strategies in order to cover, rather than confess my ignorance. That same day I wrote to my parents in Trieste asking them to find me all the addresses they could of organisations, centres, institutes that dealt in some way with Europe.

On my return to Trieste from the United States in 1956, I went at once to an address (1 Piazza San Giovanni, first floor) where on a door plate was written “Movimento Federalista Europeo”. I didn’t find anyone. Neither the doorkeeper nor the owner of a small watch shop
on the ground floor was able to give me any precise information, except that someone was occasionally seen in that apartment. The doorkeeper thought that one of the rare visitors was probably a baker who had his shop in via Rossetti. I made my way along this long street, looking for the shop in question. It was in this manner that I met half a dozen people, among them a teacher, an accountant and a lawyer.

The last person I met was an elderly gentleman, Emanuele Flora, a concentration camp survivor. I have never met another person who was so good, wise and understanding in dealing with human errors, bearing in mind what he himself had lived through. He was the first to make me reflect on the fact that everyone – Nazis, Jews, and other men and women – shares the same destiny and the same humanity. Those who had been exterminated in the camps were first of all human beings and only afterwards Jews, gypsies or political enemies (and this holds good for Stalin too). We were “us”. Unfortunately, even the torturers were “us”, humans. There is no such thing as an acceptable appropriation of victims on the part of a group or of a particular nationality. Nor does the possibility of total refusal of every responsibility for the actions of torturers and brute force exist. The path towards a real human civilisation has still a long way to go. Progress can and must be made. They are made step by step over the long distance. It is a matter of respecting ourselves and respecting the other part, that is also in us instead of exorcising our weaknesses and our anxieties by looking for external enemies.

To build Europe, developing federalism meant taking a small step in the right direction. It was Emanuele Flora who gently instilled the seeds of these ideas in me.

The other members of the Movement, having almost no contact with national or European organisations, had lost hope of being able to do anything useful and even considered dissolving the Trieste section. Moreover there was the rent on the headquarters to be paid and there was practically no income. In short, within the space of a few weeks I found myself the section’s secretary.

First of all the money to pay the rent and other expenses had to be found. To this end I organised some language courses (English and German) using teachers who spoke these as if they were their mother tongue. When the English teacher could not come I gave the lesson myself. At that time society was not as organised as it is now and I was so inexperienced that I did not ask for permits nor did I pay any tax in spite of the fact that information about the courses appeared among the classified advertisements in “Il Piccolo”, the local daily paper.

2. In Search of Europeist Movements

After my return from the United States, using every available means, I began to identify the European movements and organisations that existed in Italy and the numerous countries of the continent. I made use of all the journeys (by train) that I could. On arrival at the station of an important city I went to check the local telephone directories, looking under words such as Europe, European, federalist, union or European association etc. I went in person to see what there was at the addresses indicated. At Cornavin station in Geneva there is still a telephone box that I had difficulty using in the spring of 1967 because I did not have enough
Swiss money. I found that there was a Swiss section of the European Union and I went there on a tram characteristic of the period – it still exists – number 12. I got off at an address near the International School: It was the home of the head of the school and it was his wife who opened the door to me. It turned out that it was her daughter who dealt with the federalist activities but she was not at home; however, I could see her the next day.

At that point I didn’t realise that I was making the acquaintance of my future mother-in-law. Her daughter in fact was the one who made me “catch fire” as Henri Frenay was to say and who would become my first wife.

In Paris, Brussels, Amsterdam, Rome and other cities, I made contact with and visited most of the European and federalist associations. Getting to know their headquarters, even when they were closed or those in charge were absent was still useful to me as it gave me a visual idea of the organisation. I’m writing about a management principle which at that time I adopted by instinct and from necessity and which I have always maintained in all my subsequent activities, above all in those relating to industrial research and insurance.

In my wanderings I ran into numerous local organisations or ones with a different political and economic vocation. For example that of a Hannover lady, Mrs. Servaes, who had founded a group “Helft Europa Jugend” to stimulate meetings among the youth of different countries and to help them to think about their common future in post-war Europe.

During these journeys I had seen many cities in Germany where traces of the destruction caused by the conflict were still clearly visible. The Berlin Wall had not been built yet and it was easy to go to the eastern part of the country. With the recklessness of young students one evening some friends and I went to the “Budapest”, a nightclub frequented mostly by the Communist rulers of the city. I asked if I could enter, saying simply that I was Italian and consequently they did not demand that I show a party membership card. The club was full of very young senior managers. It was evident that by entrusting power to those who probably had not earned it, political control was established. So I told myself: young people could fall into the trap of their own ambition, thus manipulating themselves. A good number of the public present in the “Budapest” in fact had the rather arrogant air of the upstart. The only old man in the place was a waiter who came to serve us and he said in my ear, on hearing that we were not communists, “At least for once I can serve gentlemen.”

Pushing our luck a little provocatively we asked if there was any Coca-Cola or whisky, but we had to content ourselves with vodka.

3. First European “List”

Together with two friends in Trieste at that time I founded a European “list”, la Libera Lista Goliardica (the Free Goliardic List), of participants in student elections. This list obtained three seats with Ruggero de Portula, who took up the management of a centre that organised trips and holidays in the snow, and Giorgio Carlonci, who was one of those typical traditional University characters, known for his sudden impulses and his good festive temperament. As for me, I began to take part in what is known as university politics as part of a European group and participated in the Congress of the UNURI in Rimini in 1957.
and in Cattolica in 1959. The President of this organisation was Marco Pannella who later fought many “lay” battles in Italy, especially with his Radical Party. The leader of the university was Bettino Craxi, who would later become the Italian Prime Minister. At that time he had a fairly Leninist attitude: thin, a little sullen, distant and with a revolutionary-rigorist style. It was difficult to speak to him if you were not a member of his group. Later, when advancing his career, before dying in Tunisia, he would become markedly fatter, change his style and as leader of the socialist party would become, among others, a friend of Silvio Berlusconi. It was a very different path from that of Francois Mitterrand who introduced the Communist party directly into the French government while Craxi indirectly opened the door for the government to the old fascist party transformed into the “Alleanza Nazionale”. In the UNURI the greatest leader at the time was Marco Pannella, he of the fiery speeches, who prepared to open up to Europe, so much so that some years later he fought for the European Federalist Movement and collaborated in organising the private elections of the Congress of the European People, a subject that will be taken up later in the book.

My participation at the Cattolica Congress ended in drama. The Trieste University students had not paid their association fee to the UNURI, partly for political reasons. I was absolutely convinced that Trieste University should rightfully enter this organisation and I pleaded this good cause among some of the members of our delegation. Three of us signed an acknowledgement of personal debt to pay what was owed, so convinced were we at that time that once back in Trieste a reimbursement would be a mere formality. We are talking of a considerable sum for students like us. For six months we had to fight, to live in agony because the “Tribune” (the head of the Trieste student assembly) refused to accept the debt. My parents never knew anything about this.

“You’re so stupid as to personally sign.” they used to say to me. In the end the funds were unblocked but I learned to make no more mistakes of this kind.

Even the trips organised for students with a view to leading them into “Europe” had some problems. We had planned a trip by train to Germany and Brussels and had obtained a special coach. There were enough bookings to fill it. At the last minute all the hotel bookings went up in smoke for a variety of reasons. The trip, however, was not cancelled. I left a day early on our first stage and spent the day looking for an inexpensive hotel for 40 people. When the group arrived everything was in order and Ruggiero di Portula had already left to carry out the same operation in the next city. And so it went on. Everything went well, but here too I learned to be more careful when it came to hotel bookings.

Besides the conferences on Europe held in Trieste and other cities of the region the EFM also organised seminars such as the one in May 1959 on transport policies in Europe. This initiative was picked up by some experts from Trieste University who continued to develop it until very recent times.

Finally in 1959 I launched a small European periodical (Rassegna Europea), published two or three times a year for five years. The last three issues of the magazine were published thanks to the involvement of the regional head of the EFM, Guido Commessati, who was
in Udine and divided his time between his pharmacy and his devotion to Europe. My first collaborator on this magazine was Armando Zimolo who would later become the Secretary General of the young Italian liberals. A very talented writer, while remaining “European” he dedicated himself to what had been the party of Benedetto Croce and at that time was led by Giovanni Malagodi. It is thanks to them that I often go to Rome to have lunch at “Mario’s”, on via della Vite, in the Piazza Spagna area.

4. The “Integral” Federalism of Alexandre Marc

In May 1959 during a refresher course at the Contamines near Chamonix, I listened for the first time to Alexandre Marc, an activist, great orator and intellectual of “integral” federalism who put particular stress on the social dimension of Europe. He was originally from Odessa which he had left in 1918 at the age of 14. When still very young he had turned to the new progressive trends and he would always have a deep attachment to Proudhon. His real name was Lipiansky and his call to the federalist battle reduced me to tears of emotion. To my surprise he and his wife used “voi” with each other following a rather aristocratic French usage.

Alexandre Marc was the man most responsible for the introduction of the term “massification” into contemporary language. His “integral” federalism stood against disintegration in the contemporary world, of the primary and secondary groups (the family, labour and professional associations, clubs and district cultural groups). The human being lives in a community, or rather in various communities. He cannot therefore become “one dimensional” because he risks losing himself, of submitting himself to a dictatorship of the uniform mass, open to coercion at will. Power must not be centralised but divided into different levels in line with necessity.

For Marc, even liberalism and socialism tend to standardise. Federalism therefore forms an antidote and building Europe is the most concrete means of creating a framework capable of counterbalancing powers and of increasing the opportunities for subdividing them. Contrast and diversity represent social and political richness for a real modern democracy. This joint venture is connected to the idea of subsidiarity which demands or suggests that any power be established only at the most efficacious level. From this there derives the plan for a supranational Europe, at the same time founded on regions, or even more, as in Switzerland, on towns.

At the European Federalist Movement’s Montreux Congress in 1964 Alexandre Marc succeeded in having a “Federalist Charter” voted in. I have always sympathised with the ideas to which, till the very last days, he dedicated his long life, but I maintained that his economic analyses were based a little too much on ideological visions that did not manage to encompass the experience of my employment activities nor my personal considerations on the subject. I could also agree with his fundamental political principles but believed that they made difficult the integration of the various realities and contemporary economic development in an efficacious synthesis.

Alexandre Marc’s “integral” federalism moved forward in parallel with a series of movements and cultural clubs related, with various minor differences, to federalism, such as,
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between the two world wars, Mounier’s personalism in France to which Marc and Denis de Rougemont had subscribed. Another was the “comunitarista” movement of Adriano Olivetti who, from a beginning in Piedmont had been able to develop a large typewriter industry (later converted into electronics and then telecommunications) supporting the local economy, and who contributed generously to the Association for the Council of European Municipalities. When one enters or leaves European cities and villages one often sees a sign referring to “twinning” with other cities in various European countries. These are the fruits of meticulous work that has gone on for decades, without counting the initiative taken to promote local autonomy at the regional level, and finally following the same inspiration across the various projects of cross border regions.

In the same sphere of influence as Alexandre Marc we must also remember two law professors from Strasbourg University, Michel Mouskhely, who came from Georgia, Stalin’s homeland, and who in the 1950s had organised an expedition with some French and German students to tear down border barriers. He subsequently became President of the Congress of European People, and in that role drew up a European Constituent project which floats to the surface in many European projects even in our time. Guy Héraut was a colleague of his and he too took up the same project, dedicating himself to the rights of minorities. It was sometimes difficult to have a discussion with him. He vigorously defended the principle of the rights of the ethnic minorities, in most cases more than legitimate in a more democratic vision of society. Sometimes, this created problems, especially when he was asserting local autonomy to the point when tendencies toward some more or less disguised forms of local nationalism emerge. And nationalism with its demand to exclude everyone else, be they local, national, European or global, is never federalist. Somewhere there exists a demarcation line which foolish passion sometimes leads us to cross.

5. Denis de Rougemont and Personalism

We all must resolve the knot concerning the definition of our identity by asking questions such as who am I, who are my friends, in which language or dialect do I think, which is my culture? etc. Everyone belongs to a greater or lesser number of groups or circles. Denis de Rougemont defined his personalised federalism with these words: “I am Protestant, writer, French, of Swiss nationality, my country is Neuchatel, and I am still many more things”. When nationalism and often liberalism too, or socialism, which can then lead to nationalism, reduce the person to a single dimension, they impoverish him. Ethnicity can be one of a person’s dimensions while it creates human and cultural solidarity. But, as a kind of specificity it can become a myth or a symbol for nourishing aggressive instincts, especially when it becomes the final justification of power.

I listened to Denis de Rougemont’s speech hour after hour on this subject. It was he who had compiled the cultural declaration at the Hague Congress in 1948, from which the European Movement was born, and which was attended by almost every federalist and pro-Europe group seeking a way to create European Unity. As an author of a book titled L’Amour et l’Occident (Love in the Western World), he added his name to those greatest
writers of the 20th century French literature and with his writings he always did battle for a Europe founded on Regions and on a philosophy founded on personalism.

Behind Denis de Rougemont’s thought one could catch a glimpse of how a great liberating idea such as individualism could lead to the spread of ill-omened seeds, and when made absolute as in the case of nationalism that too often reduces man to a one dimensional being.

Very often, when speaking of the possibility of the progress of civilisation general references are made to the possibilities of improving human qualities such as comprehension, altruism, generosity, compassion, love, respect and so on. Maybe heaving a sigh by way of admitting that we are still only talking today of utopia. The problem is finding a feasible way: in fact a philosophy that is born in the human heart and mind, and that makes this progress possible.

While individualism brought with it the possibility of opening the way to finding and constructing freedom for everyone, it is clear that it also stimulated and created conflicts of every kind, when two claims to freedom collide instead of coming together. This happens above all when the other or others are seen as being different and maybe even immovable opponents.

But who are the others in the human race today? For the most part they are distant or very distant cousins with whom we share a small, perhaps a very small genetic and cultural inheritance. In fact they are not “others”: they are in part “us”. Of course dominant traits exist in each one of us, and everyone can be defined above all as Italian, Slovenian, American or German and so on, according to one’s own history and the history of one’s own family. Yet a small, maybe a minute part of us, sometimes denied, even unconsciously, is the same part of others. When we deny it or even fight it we impoverish our personality and our richness, our interior baggage, our very being.

Personalism is the starting point for a qualitative leap forward for civilisation and the basis for political and social federalism, applying a brake to the possible distortions of individualism.

And all this occurs, not through an abstract act of good will, but through the recognition of the value of the different, as a component of our own being.

It has taken several years, however, to understand the depth of Denis de Rougemont’s thought.

6. Italian and Federalist

My homeland is Trieste. Among the city’s hills there are Celtic ruins, in the old city there are Roman remains, the cathedral door rests on two pillars that come from ancient Roman buildings. In 1382 Trieste forged a pact with the then small Austrian march, which for five centuries, apart from a twelve year period, allowed it to avoid being conquered by powerful Venetians. Until the XVII century Trieste remained a small city of two or three thousand inhabitants who spoke a variant of the language or dialect of Latin origin which is found in a part of the Grisons in Switzerland among the Ladins in the alpine valleys between Austria
and Italy. It is also found in Friuli. It was Austria at the time of the Empress Maria Teresa (she who had held Mozart on her lap) that made Trieste the great maritime and commercial centre of Europe. At the end of the XIX century the city had a population of around 300,000 inhabitants and boasted having Europe’s second port after Marseilles.

Following emigration from the North, East, West and South the dialect was modified and took on German, Greek and French words. At school I had friends with Albanian, Slovenian, Croat and even Swiss sounding names. My family came from Venice following the wretchedness that had befallen the almost one thousand year old Republic after its destruction at the hands of Napoleon (whom deep down I have never forgiven for this act).

Many of those who arrived in the city of Trieste soon became Italian, in that almost federalist monarchy of the Habsburgs who for over five centuries had had plenty of time to completely germanise Trieste. And yet that had not happened. In Trieste the middle class naturally spoke German, but also, and above all, Italian. It was a sign of social cultural success, accepted and sometimes encouraged by the Austria of the time. Trieste’s great Italian writer Italo Svevo’s real name was Ettore Schmitz. When Venice became Italian in the course of the XIX century, the people of Trieste were still fighting for greater democracy within the Empire. And Daniele Manin called them “traitors.”

Only from the XX century did nationalism catch on. In Trieste it created a paradoxical situation in a historic period that favoured the idea of the nation-state, many of Trieste’s citizens considered themselves to be not “Italian” enough. In search of an identity of which many of them were not always certain. The city soon became a starting point for many fascist activities. During the Second World War the only extermination camp in Italy was in an old rice factory in the city. And it was at this time that the split with the Slovenian minority became deeper. This group had been integrated into Trieste for centuries, and in fact had an important Trieste literature in their own language. See the case of Boris Pahor.

It is easy to understand how I have often considered certain nationalistic attitudes as demagogic expressions that regularly end up diminishing the cultural values of the nation in question. In extreme cases we can find the tragedies of the last century. Germany without Hitler, Italy without Mussolini, Russia without Stalin, and closer to home Yugoslavia without Milosevic would have saved more than a few disasters. This then is why I, a Triestine, maintain that the best way of being Italian is to be a European federalist. And if I do some good things I will be appreciated everywhere as the Italian that I am. And every so often I like to feel a little Swiss, American, French, German, English, Slav and so on, according to the circumstances: it is like catching a glimpse of bridges and feeling you can cross them.

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In November 1959 I left for Milan for my first “real” job. Doing what one likes is a luxury, but one has to first survive and enter into the undertaking that allows us to satisfy our primordial needs. Later there will be enough time, if we have the desire and the predisposition to grant ourselves what I call luxury. Transferring my activities in Trieste was not
easy: They told me I could continue to work during the weekend, returning often to my city of origin. This situation lasted a little more than a year, until the time I took up employment in a European enterprise from Basle in Switzerland in 1961 taking advantage of my chemical industry workbase.

7. Organisation of the Elections

In July 1956 a group of European federalists from several countries among them Altiero Spinelli, Michel Mouskely, Alexandre Marc, Luciano Bolis and Alberto Cabella met in Stresa to found and put into operation the Congress of the European People. Following the defeat of the European Defence Community treaty this group adopted a very critical position towards national governments. There was a matter of organising private elections for the election of delegates with a view to proposing a European Constituent Assembly. Between 1957 and 1961, the Congress managed to collect 820,000 votes. It was an activity that involved many activists and the event often drew the attention of television in cities such as Strasbourg, Milan, or Darmstadt.

Altiero Spinelli was the soul of this initiative to which Alexandre Marc and others added the editing of the “Cahiers de doléances” (Grievances Papers) in line with the tradition of the French Revolution. The initiative continued for some years, especially in Austria but it also put the seal on the breakup of the European federalist organisations and above all an imbalance among the number of voters was created, more than half of them being Italian. Spinelli retired for a time to the Johns Hopkins University in Bologna. Meantime it was precisely with the dissolution of this noble initiative that I had to deal after my election as Secretary General. In fact from 9th February 1962 the delegates elected by the Congress of the European People decided that the Federalist Movement was to be charged with carrying out its activities. The hope that it would become the principal element in the struggle for the European Federation was abandoned.

I too had contributed to the activities of this Congress. Starting from Basle in Alsace elections had been organised in several villages and small towns. At the beginning we had the support of some pro-Europe political parties that had promised to take care of the distribution of the voting papers. In many villages in fact nothing at all was done. Every available federalist went to work at five in the morning to deliver the papers to every house and every family. I myself knocked on every door, in every street, road and alley in Riedisheim. I have never, before or since, visited a centre of habitation in such a detailed manner! During the day I went around the whole area, in my car with its Swiss number plates, inviting the inhabitants to go to vote. I had a loudspeaker in the open boot which I closed with a string whenever a police patrol appeared on the horizon. They never stopped us. The results were fairly good and the experience repeated the following year.

In Geneva my wife had organised the same elections with simple announcements in the newspapers.

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The Battle for Europe

And so it was that on 20 October 1962 the Central Committee of the EFM (European Federalist Movement), meeting in Paris elected me as Secretary General on the conditions I have described. Etienne Hirsch took part in the Movement following the previous congress in Lyons, at the beginning of 1962. He was the ex-President of Euratom (the European Energy Community) in whose removal de Gaulle had played a part because of what was considered his too independent Europeist attitude.

This long time collaborator of Jean Monnet thus became a symbol and almost a hero of the EFM. In May 1964 he accepted the Presidency of the Central Committee, having already been the EFM’s representative within the International Office of the European Movement in 1963. This office created after the Aja Congress in 1948, brought together all the then existing federalist and “Europeist” organisations, including those directly set up by political parties. Etienne Hirsch would keep those positions for several years, on many occasions testifying to the need to build a Federal Europe without (or only exceptionally) interfering in the internal organisation of the Movement and its specific political activities that were mainly discussed and decided by the Executive Office. The President of this office was Raymond Rifflet, a Belgian intellectual with socialist leanings, very devoted to and enthusiastic about the European cause and very independent with regard to his ties to the Belgian socialist party. He was prevented from advancing in his career because of this. Nevertheless at the Montreux Congress in 1964 his speeches and his determination impressed Jean Rey whose Cabinet chief he became at the presidency of the European Community. Some of the truly great activists for Europe took part in this same Executive Office including Jean-Pierre Gouzy, for some decades keystone of the federalist organisation and activity in France. He had also been an excellent journalist and President of the Association of European Journalists.

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When I took up the reins of the secretary general the most urgent matter was that of cementing relations with all the regions and all possible sections, through my weekend trips. I also tried to take part, through writings and conferences, in the European political debate. At that time Pierre Mendès-France had just published a book on his experience as Prime Minister. Like every “progressist” I appreciated the man but his European activities had been received rather badly by the federalists. Here is the open letter that I had sent him in 1963. It reassumes the principal arguments of European politics.

Taken from the “Epistle of Paul to his most beloved brother Peter”:

My dearest brother Peter, I have read that the vocation has shown itself once again and that you have made your fervent contribution to the formation of a modern republic. In these times one no longer tries to found new churches but rather, new States. Nevertheless there are always the voices of some apostles to indicate the right path to hesitant humanity.

In these times even words have changed. Once it was enough to speak of a good shepherd and a good tradesman to give a human and understandable meaning to our concepts. Today, instead, good and evil seem to pass through crucial movements and the unstable equilibrium of some developing regions.
This is why I too will try, my dear Peter, to adapt to these necessities to return to the arguments with which you deal in your latest writings which I have just read.

Permit me first of all to recall the words of one of the most famous prophets of the State. Like me, he too used to love to write letters, although he was inspired by the Persian non-believers. One day he said that between Europe and the world he would choose the world, and that between France and Europe he would choose Europe. And herein lies my doubt, dear brother: would you, in the matter of your modern republic have inverted this choice? Your work is, of course based on knowledge and science, but haven’t you perhaps tried to insert a large picture into a small frame? I have made an effort to understand the problems you examine with such insight. I read for example, that foreign trade falls between 20 and 40 % of national product. I read further that some installation and production projects are often superfluous in Europe: you mention the car industry, textiles, the steel industry, aeronautics, chemistry, synthetic products, electronic appliances…. (what of any importance is left beyond these?). I’ve understood then that to be able to speak of a better use of production factors, without risking the consequences of an uneven distribution it is necessary to start from the continental level in order to consider the economic and political structures that are essential for ensuring that men and women have a democratic and, therefore human future. You will understand then that I am astounded by the fact that you do not consider the European framework as a preliminary to your whole work.

You have understood, Peter, what reality is because you say that the political system must be adapted to coordinating and planning economic life. You also say that the establishment of a regime of democracy and new freedom, suited to the times and problems, is required. What you cannot do, however, without the risk of wanting to cross the ocean in a small sailboat, is to propose theoretically acceptable tools, in a dimension in which they can be only partially used, and especially not for the purpose of fighting for democracy as you hope to do.

Once an outline of the productive structure in Europe has been prepared, you cannot think of building the ideal republic other than where this structure imposes its dimensions. You account for this situation by taking into consideration, with a certain astonishment, the words of Pflimlin: “A purely national plan loses much of its efficacy and meaning”. Despite this you continue to study the problem at a national level.

When you begin to take an interest in the Plan and in Europe you express yourself in a rather strange way. “It is impossible”, you say, “in the time of the Common Market, not to foresee European extensions of planning policies.” Here it is necessary to be clear about one point: The Europe of the supranational economy, in the measure in which it exists, was not created by the Common Market (which at most was psychologically in favour of it), but by the intrinsic need for a modern productive structure. What you say therefore, leads me to believe that you foresee, for the European States, a series of national economic plans. The result could then be that “the rest of the world” would serve as a rubbish dump where States could rid themselves of those of their imbalances that not even planning would be able to overcome.
And it is here that the old principle of international “laissez faire” that you throw out the door, comes back in through the window. The only way to overcome this contradiction is to start considering every proposal, starting with the European outline as such and to commit yourself to the battle for the creation of a supranational, democratically responsible organism. At the European level, any other solution, such as for example, that of an international commercial treaty could not lead to anything other than a network of interstate economic relations of a liberal kind, even if the economies of all the sovereign national States were completely planned.

Further on you say: “How do we reconcile national planning decisions and belonging to an international organisation founded on the increasingly free circulation of goods, workers and capital, including countries that remain faithful, at least in principle, to liberalism with non intervention by the State in the economic field?”

This sentence, my dear Peter, could have been written by an economics contemporary of Adam Smith, and allows one to think that you do not desire a European plan, because if the “free exchange” of goods apparently belongs to the liberal vocabulary (actually why, over time, prevent every European from acquiring any European goods without paying customs duties?) when one speaks of the free circulation of production factors (such as labour and capital) between States (and not only within one State) one is speaking of an economic policy whose objective is structures.

The only observation to be made at this point is, once again, that the so called European authorities need real powers to be able to put this circulation to work. Economic reality therefore gives these words, which to my way of thinking, you judge a little lightly, a perspective much closer to a plan than you seem to realise.

Furthermore, do you really believe that today it is possible to think of improving the national structures of a plan with all its political ramifications, on the basis of a reality that will escape it anyway?

I do not believe, my dear brother, that you will need forty days of solitude in the desert to admit that your modern republic is today called European Federalism. Democracy always loves strongholds but it needs a continent in which to breathe and not die of asphyxiation.

May the light of truth illuminate your steps as founder and help you to scientifically apply the fruits of your experience: I exhort you to gather your forces, your disciples, your friends to preach the alternative of supranational European democracy.

Your brother PAUL

8. The Congress of Montreux in 1964

My first great organisational effort was arranging the tenth congress of the EFM from 10 to 12 April, the second in Montreux, in 1964. It was in this city, on the lake of Geneva or Limona that the first European Federalists’ Congress meeting had taken place in 1947. It constituted a call and a hope for a relaunch.
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At that time although it was 1961 the Montreux Palace’s prices were still modest. This was also because it could count on the participation of 300 to 400 delegates. Against a background that went symbolically well beyond the financial reality of the time the tenth congress of its history managed to take place normally. Everyone paid their own travel, hotel and meal expenses. All the work was done voluntarily. As a result there were no financial risks involved. So reasonable the prices obtained from the hotel were that they can only be dreamed of today. I had played on the image, the memory of 1947 and Swiss style federalism to obtain good reductions.

I had also managed to get a number of the old heroes of European federalism, such as Henri Frenay and Jeanne Hersch to come. Alexandre Marc fought with his friends to have the “federalist card” approved. In Italy Mario Albertini took the helm of Italian federalist radicalism ingrained with the so-called “Hamiltonian” tradition: the arguments used by Alexander Hamilton to promote the American federation were picked up and brushed off for the European battle. Taking into account the fact that the Congress of the European People was running out of steam and that the Community of Brussels was developing, Altiero Spinelli had distanced himself from the activity of the EFM and Albertini, professor at Pavia and his ex-collaborator, had turned his criticism on him. Albertini’s new European strictness was not always easy to manage in the whole movement. But he did manage to mobilise a group of intelligent young people who were seeking a good cause and activity to commit themselves to. These were concentrated in Milan, Genoa and Lyons. Many of them became university teachers and industrial entrepreneurs. Over several years boosted by private elections and the primaries of the Congress of the European People, they started up a new operation, the “Census of the European People”, in order to gather the maximum number of adherents to the ideal of a European federation.

At Montreux therefore there was a battle between the partisans in favour of the card and those for the Census, not to mention the other initiatives such as that of Raymond Rifflet for a European Democratic Front. This was to have an unexpected success in Rome, about six months later. Every debate at this Congress was recorded and the tapes were deposited in the European Archives in Geneva.


There were more than 5,000 delegates in the Palazzo degli Sport for the VII States General of European Municipalities, convened in October 1964. They came from the six countries of the European Community and they were almost all locally elected members of municipalities, cities, provinces and regions. The CEM (Council of European Municipalities) presided over by Henri Cravatte had become one of the most important organisations supported by federalists and “Europeists”. The centre had been used in 1957 by The European Movement for another great Congress aimed at accelerating the ratification votes for the Treaty of Rome, giving origin to the European Economic Community and to Euratom.

The atmosphere was experienced on great occasions. During the Congress meeting, the expulsion of Kruschev and the explosion of the first Chinese atom bomb were announced.
These were enough to cause a pause for thought on the instability of the world and on the need for a united Europe.

Above all, however, a great controversy broke out concerning the action of Paul-Henri Spaak, the Belgian Prime Minister, who until then had fought a coherent European battle. Two and a half years earlier he had made a speech rejecting the official French conception of a Europe of Nations and this had caused five non-French Ministers to reject the Fouchet plan. At that moment I regretted the fact that de Gaulle had not followed the example of French leadership indicated by Jean Monnet, as acting thus, he provoked, as a reaction, nationalist stances on the part of the other partners of the Community and from that point it was no longer so obvious to all that French would be a European working language. Perhaps it was a lost opportunity.

On 11th September, 1964, probably discouraged by the controversy with the French Government at the time, Paul-Henri Spaak made a speech in front of the political committee of the Western European Union (a military alliance) and proposed using the famous Fouchet plan to carry political Europe forward. “It is appropriate that we be realists and take into consideration eventual compromises rather than having them call the final goal into question,” he said. There was an outcry from the federalists and the Congress of Rome counter-attacked. The weakness of Paul-Henri Spaak was condemned before the great European public of local elected officials.

It was the only time that I had the sensation of participating, or rather leading a public political action of great importance in which I had no experience. We had at our disposal about fifty extremely determined federalist activists who presented a hard time to many delegates in order to have them vote during the plenary assembly and who began with the following declarations:

- European construction is blocked. National governments, who, rendered blind by egoism and clinging to obsolete competences, oppose development of any kind and compromise all that has been achieved with so much effort.

- Europe is gravely threatened, in its democratic foundations, in its economic and political independence. Without a reaction by European citizens to profoundly change the national structures to which governments still cling, it would be possible, at most, to keep a Europe of alliances, at the mercy of whims dictated by interests.

- European economic integration, so happily begun by the Community, could not have made substantial progress if a determined step toward federal organisation had not been taken: progressive extension of community competences in the fields of foreign policy, defence and culture and, in a very near future, the creation of a European federal government. Truly democratic control must be exercised by a parliament, one of whose chambers must be elected, using direct universal suffrage by every European.

- Aware of the gravity of the situation the seven States General of the European Municipalities should turn to the European citizens, to every local authority, to the
political and economic organisations, and to youth movements so that a Democratic Front for a “Federal Europe” might be built.

The federalists had worked well and in concert in an impressive assembly and one stamped by events. I concentrated on collecting signatures for the motion. I also had the privilege of counting on an exceptional adviser, Charles Hernu who at that time was President of the Jacobin Club, who was strangely very close to the Federalists also on other occasions. He also suggested how I might use slogans in a demonstration banned by the police. Some years later he became one of Mitterrand’s Ministers and unfortunately suffered some disappointments over the Greenpeace affair.

I felt myself to be something of a carbonaro (the Carbonari were conspirators at the time of the Italian Risorgimento for national unity) when, having passed some hours with activists organising the campaign in favour of the motion, I took part in a meeting of the international council of the European Movement. They were scandalised to discover that some hotheads had infiltrated the assembly. I was stunned to hear some of those present stating that what was happening was the work of irresponsible idealists, never imagining that I was one of them. They thought that Spaak did his best in the situation at that time, but in fact it was this very situation that the federalist activists had slightly changed. Actually the members of that council were annoyed by the fact that their pride over being in charge had suffered a blow on that occasion.

10. “Europe cannot be other than Federal”

On the first of June 1965, the Paris region of the EFM organised a dinner-debate with Gaston Defferre, mayor of Marseilles and candidate in the elections for the Presidency of the French Republic. Opening the discussion, Etienne Hirsch said to him: “Last October, at the Congress of the European Municipalities in Rome, you saw militant federalism at work. Thanks to their dynamism, the Congress voted for a political resolution that expresses in strong terms our objectives for a “Federal Europe.” “The Europe we want to create cannot be other than federal”, replied Gaston Defferre. It was another stage in the action begun about a year earlier. On the one hand Max Paillet in a book on *Left, Year Zero* had fully introduced the theme of Europe as the indispensable basis for a modern democracy. Moreover some federalists had contributed to a work titled “Mister X” that led to speculation about de Gaulle’s next opponent at the presidential elections. Subsequently it was Defferre himself who revealed that he was that candidate. On the other hand, in France the EFM had created one of the seven Clubs that formed the Convention of Republican Institutions, the Democratic Front for a Federal Europe. On 7 June 1964 I had the privilege of attending the meeting of this Convention of Republican Institutions in the old Orsay Station, where the museum has its site today. The assembly was laid out in accordance with the French Revolution usage: two long platforms on the sides and at the two ends, on one part the chairman of the meeting and on the other the speakers. There were photographers who remained more or less unobtrusive and I wondered if, as a non-Frenchman, I might have a surprise, particularly at that time when office meetings of the EFM were held there had been police intelligence gathering visits. But nothing special had ever happened.
The Battle for Europe

The clubs and the convention became the lever and the starting point from which Francois Mitterrand and his collaborators rebuilt the Socialist Party in France, and on this basis the President was able to open the majority to the Communist Party. At this point a large group of federalists, given their more centrist leanings, preferred to drop out and the activity of the Front lost a part of its incisive character. On the other hand, however, it was the European option that allowed Mitterrand to have a very visible and autonomous point of reference when faced with the left wing and the Communists, while collaborating with them. This operation was particularly important and delicate given that the French Communists had never developed a position or a positive European initiative. On this level the Italian Communists had for years been well ahead, thanks to the influence of Altiero Spinelli.

At the Convention of Republican Institutions of 1964 the final resolution was declared. “Political Europe must establish a federal government, democratically designated, which is the left’s objective in Europe”.

For their part the more moderate French European federalists at the time of the presidential elections lined up behind Lecanuet, who thus reinforced the old European tradition begun after the war with the MRP, Christian Democracy in its French version, of which Robert Schumann had been part.

11. Rebuilding Federalist Unity

After the Congress of Montreux in 1964 I organised the one in Turin in 1966 and the one in Trieste in 1969, at the end of which I resigned. A Belgian Flemish activist, Ludo Dierickx, took my place. He would later take part in another battle, that of the start of the Environment movement, and at one point he was also elected to the Belgian Parliament for the Greens Party.

Subsequent to Montreux I undertook the reconstruction of the bases of European federalists’ unity. After several contacts in Frankfurt with the European Union of Germany, led at that time by Karl-Heinz Koppe, then in the Netherlands with Molenaar and others, we succeeded in establishing a contact committee between the EFM and the AEF (Action Européenne Fédéraliste) at Basle, on 30th January 1965.

At a meeting in Bonn that took place sometime later, a delegation of the two federalist organisations was received in the seat of the German Parliament by the President of the Federal Republic in person, Mr. Scheele. “Willkommen Herr General Sekretär” – Welcome Mister Secretary General, he said to me very cordially. I could not help but think that the day before I had been using a calculator to calculate the quantity of fertilisers sold in Europe during that week.

Strong support for this whole operation was furnished by the Swiss European Union, and in particular by its Central Secretary, Thomas Raeber, who would later become ambassador. The final reconstruction of the UEF (Union of European Federalists) came about after my departure, but it was also about knowing what could be done together. In any event, in order to subsequently negotiate better, from 1963 I tried to maintain and develop the contacts and
initiatives with those sections in the areas where the AEF were in the majority, especially in Germany (whereas in Austria the EFM had always remained in the majority): After the war Eugen Kogon was a partner of Frenay and of Spinelli in the UEF, followed by Friedlander, a famous journalist whose daughter, Katharina Focke, senior manager of a European and federalist centre in Cologne, later became the Federal Minister of Family Affairs in the Bonn Social Democratic Government. Claus Schöndube had long been the diamond point of the EFM in Frankfurt and had developed groups in Lubeck and the Black Forest. Long term president of the AEF and more importantly the founder of the College of Europe in Brussels, Hendrik Brugmans, completed, together with Denis de Rougemont and Alexandre Marc, the cutting edge trio of federalist intellectuals of Europe, the bearers of a real plan for society.

During all my years of work as Secretary General I tried to find points of collaboration with Altiero Spinelli and I often met with him, for example at the meetings of the Club REP (Realtà Europea del Presente) made lively by Jean Gouzy and Raymond Rifflet, at which many political leaders such as Michel Rocard took part. Instead when it came to the movements, after the experience of the Congress of the European People, he thought that their activities should take place within the parameters of, and in relation to, the European Community, and later the European Parliament. He had also asked me to join him in Rome when he founded the IAI (Institute of International Affairs). On the one hand it was important to me to maintain my hands on activities within the reality of economic life, and on the other I was hoping for a miracle for the federalist movements. I was thinking for example of a synergy between federalism and ecology, and between federalism and the new economy of which I will speak later.

Altiero Spinelli, the great Resistance fighter, who had spent 16 years in prison and confinement on the island of Ventotene under Fascism, where he had the courage to rethink his revolutionary commitment in European federalism terms, continued his activities at the Crocodile Club in Brussels insisting that the Members of the European Parliament be fully aware of their mission to create the Constituent Assembly of Europe. All this while becoming a member of the Brussels Commission and seeking to give an example through the appointment of an Englishman, Christopher Layton, as Cabinet Secretary. Spinelli would carry on his battle, personifying, with his square head, white hair and beard, the classic image of a great prophet.

Among my other initiatives I can recall that in 1968 I published a book in French on Europe and Space, published by the European Research Centre, Lausanne, and headed by Henri Rieben.

On the one hand I wanted to look into the possibility of carrying out research in this field at the Battelle Institute where I was working. On the other hand I thought it useful to bring to the attention of the European Community a sector, i.e. space, which, despite the doubts it still aroused, would sooner or later become an essential element of world development at all levels.

Finally I wish to recall a great and symbolic gesture made by the Bologna section in 1965. For every federalist the construction of Europe had to encompass the creation of a single
currency. In Bologna symbolic coins with the name Euro were minted. A well chosen name! There was a one euro coin in silver and others of 5 and 10 euros in gold.

I like to think that now that the Euro is a reality, the importance, not only economic but political and social, of this absolutely fundamental initiative, will be understood as one of those decisive steps on which the new civilisation is founded. How lucky am I to have lived that day, 1\textsuperscript{st} January 2002! I felt like Christopher Columbus the day he discovered America. No one realised at that time how the world would change.

12. National Situations and Federalist Attitudes

To complete this introduction to my European activities I think it is useful at this point to mention some points in order to better set out the context, the ambitions and the limits of the European federalist actions at that time.

First of all the impact of national institutions on federalist attitudes.

When the various works dealing with the history of the activity of the federalist movements are examined one cannot help noticing a certain national eulogistic tendency. And yet what appears a weak point is rooted in something deeper that federalists themselves have sometimes concealed with stereotypes. In reality every position, including the most supranational or federalist ones, has always been conditioned by the national politics of each individual.

Let us begin with my Italian compatriots who were often shown to be and defined as more “advanced” and more “radical” when it came to the subject of supranational institutions compared to most of the other movements. The cause of this attitude rose from a certain disillusionment brought on by the political life and national history of Italy. A way was sought at the European level, that would lead towards a modern society to which they could belong. Historical experience had not permitted the creation of a satisfactory national reference framework. A united Italy came about late, in the second half of the 19th century. From then on and until 1898 it had been the practice to concentrate on the problem of the Catholic opposition to the new State. The First World War led to Fascism – a historic caricature of a state plagued by a deep national insecurity. It was only in 1945 that Italy seemed to resolve its principal start-up problem that had prevented its entry into the modern world.

Which road to take? Some people maintained that playing the nation card was more than enough. The template for European federalism responded not only to the common need of all Europeans but also offered the possibility of a shortcut to the resolution of the problems of Italian society in the modern world, hence the very often “more European” attitude of the Italian federalists.

Now that twelve European countries are, since 1\textsuperscript{st} January 2002, in possession of a single currency some signals seem to indicate a supranational reality that is increasingly taking more shape. Italy, always very “European”, appears to be demonstrating some nationalistic reactions which in the past (and sometimes in the present too) were the prerogatives of other large countries. It is perhaps a question of growing pains or simply a way of learning that
European Federalism is not there to eliminate or compensate the small, medium or large nations but to complete them at a higher level, to enrich them in terms of civilisation.

Germany had some problems in common with Italy but to speak of them in a “revolutionary” way caused a good deal more fear than in Italy. This was first of all because the trauma of Nazism had been stronger because of its division into two parts. The problem of the defence against the East, particularly during the Cold War, rendered this country’s federalists more “moderate” and at the same time well disposed to a supranational Europe capable of giving a credible response to the need for defence. The crisis caused by the failure of the European Defence Community had forced the Germans to become “atlanticised” (to have at least the guarantee of an American defence, a necessity for them in the absence of a real Europe). Some Europeans, critical of the Germans at the time for being “too friendly with the Americans”, risked pushing them still further towards the choice of a national strategy. Nationalism feeds on itself and on the reactions that it provokes, though in the opposite direction, beyond every border.

As for France it is a country that, like England, has a long “national” history. Although punctuated by failures this history can also boast some excellent successes. For a French citizen, therefore, it was not as evident on the face of it, as for an Italian, that a federal Europe was possible or necessary. Moreover, France has centuries of centralising power behind it, and this has allowed it to survive as a continental State. The French Revolution did not alter anything in this regard in relation with the monarchy, but only sought to be more efficacious.

The French European federalist, therefore, had to overcome some important obstacles. On the one hand he had to understand, and be convinced, that European unity was a new means for solving a new problem: the independence of the French citizens and that of the French nation passes through European unity. A partial, but real, abandonment of national sovereignty is today the condizio sine qua non of every achievement of independence. What may have been valid last century at the level of a single State is no longer so, except on the European scale.

On the other hand, after a long historic period during which the “necessity” for centralisation permeated the deepest levels of their culture, the French naturally find it more difficult to understand a federalist division of powers. Despite its closeness to Switzerland, where – according to the Constitution – the Confederation (which is supranational) guarantees the independence of the cantons, it has not been easy for French cultural centres to realise that European federalism and the European supranationality which it entails do not in any way mean the diminution of the French culture or identity, but rather they guarantee their survival and development in the modern world. The alternatives are marginalisation and decline for France as for every European country. So it is easier to understand why, in France, the federalist movements were much more careful, than in other European countries, to put emphasis on the “integral” federalist doctrine.

In Switzerland it is exactly the opposite. There is no need to explain federalism in this country. They live it, to the point of sometimes being unaware of it. With the Swiss the necessity for linking themselves constitutionally to Europe needs to be justified. This in a country
that, following a series of geographic and historical circumstances, has found its happiness, at least since 1847, the date of the Constitution as a Federal State, by keeping itself “above the mix”. It’s a pity that Switzerland was not really committed to explaining and highlighting, as Denis de Rougemont tried to do, the substance of its federalism in a Europe that in any event, in one way or another, will have to, willy nilly, be increasingly federalist in order to live well in this new century. And even democratic federalism cannot be other than increasingly more European.

13. The Question of Peace

The key point of the federalist movement, right from the beginning, was peace. It is completely to its credit that it immediately put this question at the centre of its concerns and that it recommended, and gave the example of, reconciliation among the countries of Europe, even before the end of the Second World War. The federalist plan suggested that all interstate relations should be subservient to the pre-eminence of law. In this respect nothing is more reasonable or sustainable. The problem arises when it comes to procedures. It appears that a world federation is unrealisable without intermediate stages, although some embryonic juridical structures within the United Nations and other organisations on a world scale had been beginning to develop for some years. The great majority of federalists therefore accepted the idea of concentrating on this intermediate stage established by the European Federation.

This said, from 1945 the problem of peace in Europe was essentially conditioned by the Cold War, and building Europe soon became a means of organising the defence against the East. That, which was given, and certainly very important, quickly became a fundamental element of federalist activity. For this reason, Stalin’s death coincided with the end of the most fruitful period of the movements’ activities, given also the failure of the European Defence Community and the attached political Community plan. Moreover, it became increasingly clear that in our days one must not limit oneself to the idea of opposing war between States but that it is also necessary to face the problem of war within them. This dramatically highlights the urgent problem of interdependence and globalisation.

I insist that the future of politics lies in exploring all the paths that lead to federalism. Democracy and Federalism must in time become increasingly synonymous, in order that with the full compliance of every being on earth, the most may be made of the great plan for building a true civilisation. Something that humans have so far been unable to do. Hope, however, looks to the horizon.

14. Debates on Development

A third reflection on Europe and its economic development. From 1945 the main reason put forward by Federalists for the unification of Europe was this: “If Europe refuses to become federal it will head straight to poverty”. At that time this sentence appeared legitimate, taking account of the destruction caused by the war and of the efficacy of the first institution obtained by the Americans, the OEEC (Organisation for European Economic
Co-operation later to become the OECD), through which Marshall Plan aid was apportioned for the economic rebuilding of Europe.

However this economic affirmation made by the federalists proved to be too imprecise, not to say false. Actually it was then the beginning of the most important period of expansion that Europe had ever known, and this continued during the whole of the following quarter of a century. The creation of some tools and institutions (IMF, GATT, the World Bank and others) was enough to guarantee good economic and financial stability, to avoid the disasters that followed the First World War. Thus it was that the enormous productive potential accumulated thanks to new technologies which brought about a powerful economic development, as vast and unique in history as the building of the pyramids. On the other hand this had not been expected by economists, nor by those in charge nor the intellectuals of any side. The process of European integration did play an essentially psychological role, however the reasons for this success are to be found elsewhere and I will deal with them in another chapter.

There would have been therefore a latent contradiction between the federalists who supported European integration for economic development and the reality of a phenomenon that went far beyond that. As a result the federalists were unable to build a steady and credible dialogue on economic matters.

It is also useful to remember that the Common Market was not the most important engine behind this economic growth, although it became to some extent its symbol. Actually the European Economic Community caught a train already on the move without having done much to get the engine moving. From this followed an effect of autosuggestion that manifested itself at the time of the negotiations for the entry of Great Britain into the Common Market. That country, then in a stagnant economic phase had too quickly drawn a parallel between growth of 5 and 6% and membership of the Community. And England entered Europe more or less at the moment when the great growth was slowing down.

Despite this the Brussels Community continued to develop thanks to something that was becoming increasingly clearer: the political necessity of the integration process and the indispensable stability of the economy that it provides. Jacques Delors, President of the European Commission, played a fundamental role, despite the irritation shown by Mrs. Thatcher, the British Prime Minister, and by some others.

15. Federalism and Ecology

I met Jacques Delors in Metz in September 1977, at a meeting organised by Edouard Kressmann who came from Bordeaux where he was in charge of an important wine business. There were about thirty people who were at the birth of Ecoropa, the International Environmentalist Movement. I brought with me the experience of the Club of Rome, which by touching a sensitive cultural and social chord in matters relating to economic growth and the environment, had had incredible success in the world. The same month, I had written to Altiero Spinelli: “In all these recent years since I left my work with the EFM I have always thought that if federalism or the movement for Europe had managed to mobilise public
opinion, the intellectuals (for and against) and the interest groups (for and against) with the same dissemination and passion as the Club of Rome, the European cause would have made great advances. The EFM and the European movements had good ideas concerning the political institutions, the Club of Rome obtained results shared by all”.

I left Metz in Jacques Delors’ car and it had been arranged that I was to put forward my ideas on the occasion of the meeting of a Club of which he was the driving force. Shortly afterward Francois Mitterrand became President of the Republic and Delors began his battle in Brussels and so my meeting could not take place.

On 5th November in Brussels, during the Congress of the European Union of Federalists I again tried to put forward a synthesis between the federalist battle and that for environment and ecology.

Here is a part of my speech:

“I bring here the account of the European Centre of Culture and Europe which has declared its intention to devise and put forward an ecological programme on the occasion of the European Parliamentary elections. Ecoropa will support those candidates committed to defending these proposals. Today, in fact, the fundamental problem for the European elections is to prevent them from taking place amid indifference. To do this a stimulating content must be found, and we must seek to carry out the debates on the level of this vast rising federalist movement that is developing today among all those concerned about:

- assessing the aims of economic growth;
- organising a modern society on a human scale in a post-industrial and world perspective;
- organising our lifestyle in accordance with ecological equilibrium;

Actually the ecologist movement does not merely represent a short term fact.

After 230 years of history dominated by the pre-eminence of industrial development other new elements intervene to ensure wellbeing.

The industrial age, together with all its benefits, also generated an increase in economic and social vulnerability plus growing costs to keep it under control.

Europe must not forget the fact that in 2000 the globe will be inhabited by more than 6 billion men and women, and that the non-industrialised world also wants to share in the riches of the plane.”

It must be remembered that in 1977 the ecology debate was still very often badly looked down upon and considered by many to be destabilising and dangerous. Today everyone talks about “sustainable development”, a formula that takes into account the needs born in the 1970s. The language on the environment is now in everyday use and the concerns that it expresses are fairly widely shared. At the time of that Congress in 1977, we were still in the pioneering phase, the one I prefer. If exaggerations do exist, they are merely excesses of hope.
The federalists of that time did not want to be open to what I was suggesting to them. There was a perceptible irritation, so much so that the president Etienne Hirsch cut me short. And so it was the last time that I participated in an official federalist meeting.

Even more painful was the fact that Altiero Spinelli had spoken in support of his thesis on the necessity of concentrating on stimulating the federalist potential of the European Communities. Some whistles were heard (it was too far “left”).

16. European integration through culture

I had already been in contact with the Geneva European Cultural Centre in 1957 during my European exploration travels. Founded by Denis de Rougemont, it was, for decades the fulcrum of European integration through culture and dialogue on civilisation. Denis de Rougemont himself had earned a considerable reputation in the 1930s as the author of “Love in the Western World” which is still published regularly and has a place among the great classics of twentieth century European literature. His life and his works are well documented. Having known him very well and over a long period I will limit myself to a few significant anecdotes.

Denis de Rougemont was not a meek intellectual. He sometimes broke out from all the constraints connected to his social status relating to conventional ideas on Europe and later, especially on those concerning ecology, to the point that at times officialdom distanced itself from him. He vigorously championed not a simple European integration but a true federation founded on regions. This idea germinated a little at a time. In May ’68 on the debate on ecology he was determinedly on the side of the innovators, frequently lambasting in a fairly aggressive manner the very symbol of the consumer society: the car.

It was not always easy to talk to him, but one could listen to him for hours. With a little patience something was always obtained because he had a very acute sensitivity behind the gaze he turned on men and things. His plan was more democratic than can be imagined, contrary to some of the criticisms that were directed at him in France, mainly thanks to a fashionable intellectual who had not taken the trouble to check the origin of the texts which he had targeted. Thirty years ago the simple reference to the word “federalist” provoked ancestral “revolutionary” reactions in France.

In 1976 I devoted myself to carrying forward a new project for the European Centre of Culture which, according to me, should have inspired the programme of the Federalist movements. The idea was to suggest to the European people the publication at regular intervals of a report under the title “Report on the State of the Union”. The only edition of this report was published in 1979 by Denis de Rougemont in the name of the “Cadmos Group”, a small nucleus of pro-European friends (such as Robert Triffin, François Bondy, Jacques Freymont, Edward Goldsmith, Alexandre Marc, Alexander King and myself as coordinator). I had found the name Cadmos in an encyclopedia on Greek mythology. Brother of Europa, who was kidnapped by Jove, Cadmos had gone looking for her. Cadmos was also remembered as the one who, during his wanderings, had introduced new technologies, particularly
the use of iron. And so he was a “researcher” of the ideal Europe. Rougemont immediately made the idea his own and used “Cadmos” to give a new title to the European Centre of Culture’s bulletin.

In a text preparatory to the report Denis de Rougemont wrote: “… There does not exist a favourable wind for one who does not know where he is going. Before all else goals must be determined. A great far off objective arouses in us much greater energies than a close by and modest end which leaves them dormant. The means for arriving at the goal must emanate from the goal itself, they must be dictated by it, with all one’s faculties concentrated on it. How could the European people be made to see the Goal of its union, big enough and inclusive enough to arouse their energies. Clear enough and attractive enough so that this intensely viewed goal would indicate the means of achieving it? It is necessary to opt for the freedom of people and for the overcoming of state-nation sovereignty, i.e. give the world an example contrary to the one given till now by the European States-nations.”

This report supported a “simultaneous birth of regions – defined as the most important political innovation of the century – and the European Federation”. It indicated the various ways and symbolic gestures which were then multiplied throughout Europe, for affirming local identities. It also recorded however that “the many terrorist crimes committed by ETA are currently the worst threat not only to Spanish democracy but to regionalism itself, to the federalist spirit, to Europe, to Freedom in the world of tomorrow”.

The Federation has to be present for there to be the means of ensuring respect for others, for defending the sovereignty of each one. As in the case of the Swiss Constitution which is there to safeguard the independence of the Cantons.

The European Federation is, then, the principal means of fighting for peace and democracy and for “rendering war among nations unthinkable”. We must, however, pay attention – it was already written at that time to the fact that civil war, terrorism both within and beyond borders, capable of using advanced technology, must also be subject to a supranational State – to law.

The remainder of the report dealt broadly with social, economic and ecological questions to which I will return later. Here, in any case, is one more opportunity for demonstrating that the path of the new society in gestation, at the European and the world levels, implied a certain parallelism and interdependence between federalism, the new post-industrial economics based on services, and ecology as a means of preserving and developing the material and human resources of the earth over the long term.

17. At Duino Castle

“Are you perhaps a member of the family of the Counts of Tschyariny who have a castle not far from Prague?” the old and distinguished gentleman unexpectedly asked me. I cannot say for sure that the name written corresponds to the one spoken by my questioner. Why would he mention Prague rather than another city in Czechoslovakia? But that is not of great importance. Alas, there are no Counts in my family, only country folk on the banks of the
Brenta, near Venice. They took the name Giarini from the little pebble beaches along the river. After Napoleon and the great economic crisis of the ancient Republic of Venice, a small group of those country folk came from there to the then booming city of Trieste.

This question was put to me at a reception in the old castle of Duino, twenty kilometres from Trieste on the road to Monfalcone. At that time the home of Prince Raymond of Turn and Taxis was still well cared for. The place was on a cliff on the Adriatic Sea, with terraces where poets and artists had been variously inspired. The living room piano was the one on which Liszt had placed his fingers, and given lessons, to Prince Raymond’s grandmother. The same castle that inspired Rainer Maria Rilke to write the “Duineser Elegien”, the Duino Elegies.

The castle then, as today, was partly built on Roman foundations. One day the Prince told us that while digging out a niche in a wall in order to put a bar there he had found some Roman coins.

Raymond of Turn and Taxis had done everything possible to preserve his castle and the symbol of an old Europe that it represented. After the war he had sold several plots of the surrounding land a little at a time. These included two or three small villages. It was said that during the war when the allied command requisitioned the castle, the commander set up quarters in a tent in the garden to make it clear that he was at home.

Some student friends and I had entered into contact with him thanks to our European activities. At the end of the 1950s we began to ask him if we could conclude a seminar with a short visit, particularly as few years earlier he had been a guest at the first general assembly of the European University Association, another of the organisations born under an impulse of the European federalist movements presided over by Michel Mouskhely.

At the castle some rooms were set aside to accommodate the participants and this was a great help. Once or twice I slept in a room with Chinese decorations. It appears that some of the pictures were painted by the Prince’s father. Later they told me that my room was haunted by a ghost, but even then I slept soundly. Then, as today, the windows looked out onto the remains of an old medieval castle almost completely destroyed. It bears the name of Dama Bianca (White Lady), which it is said was the name of the wife of a crusader who on his return, having learnt of her infidelity had her walled up alive. It was also said that her screams are heard when on stormy nights the “bora” blows at more than a hundred kilometres an hour.

This long collaboration reached its apotheosis in September 1983 when together with Andre Reszler, the new director of the European Centre of Culture, we proposed a conference to underline the importance of “Mitteleurope” in the modern world.

With the promise of a room facing the “Madama Bianca”, I ensured the participation of Karl Popper, the great science philosopher who, in the 1920s, had written a reference book on the subject. He took part in order to cast doubt on the scientific value of psychoanalysis, but what interested me was that he bore witness to the notion of uncertainty in contemporary science. He did this in the large amphitheatre of the Miramare Theoretical Physics Institute
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in Trieste, directed at that time by the Pakistani Nobel Prize recipient, Abdus Salam, also a member of the Club of Rome. The title of the conference was “Postscript to the Logic of Scientific Discovery”.

I had the opportunity to get to know Karl Popper better while accompanying him to the Venice airport. During the entire journey we discussed the logic of mental illness, a subject that fascinated him. I had read an article that explained how a scientist appears to be a psychopath at the beginning of a research task: he is so concentrated that he cannot see or hear what is happening around him. The great difference shows itself at the end of the research process: at the point when it is demonstrated that an idea or hypothesis is false, the scientist, satisfied with having understood, in spite of the negative result, puts the documentation aside and goes searching somewhere else. The mentally ill person, instead, continues along the same direction, unable to accept the uncertainty and the discussion.

“I still remember the funeral of Franz Josef, which my father had made me attend in 1916 along the Ring”. This is how Victor Weisskopf, ex-Director General of the European Nuclear Research Centre in Geneva began his speech at Duino. I had managed to convince him to make his contribution after a lunch at CERN to which he had invited me so that I could give him details of the aim of the gathering. While we were discussing the future of Eastern Europe and “our” “Mitteleurope” culture he asked me: “Giarini, I wouldn’t say so from your name, but are you Jewish?” Without hesitation I answered him: “No, but thank you for the compliment!”

I had also managed to have his brother Walter Weisskopf, Economics professor at the Roosevelt University of Chicago and “Visiting Scholar” at Stanford, come to Duino. For him I organised a special conference, just before the one with Karl Popper at the Theoretical Physics Centre, on “Uncertainty in economic thought” at which an old friend from the Sorbonne, René Passet, also made a contribution. I found myself supporting in a direct line what Professor Robert Montgomery had instilled in me in Texas. Here are the introductory words to Walter Weisskopf’s argument: “Man is an actor who performs in a drama without really knowing in what kind of intrigue he is involved. Our role in existence takes place in uncertainty concerning its meaning. It is an adventure of decision within the limits of freedom and necessity”. Right in the middle of my work for the Geneva Association, Fabio Padoa, President of the Geneva Association, was also present.

André Reszler had managed to get Romanian born Eugène Ionesco to come to Duino as well as many other historic writers, historians and poets of Eastern European origin. There were Andrzej Kusniewicz, Matei Calinescu, Antonin Liehm, Miklos Molnar, György Ranki. As organiser I allowed myself the privilege of filming the whole conference. Trieste authors, by birth or by choice, were not lacking in number either; Claudio Magris and Enzo Bettiza who today keep alive the high literary cultural level inaugurated by Italo Svevo and Umberto Saba, had also come.

Prince Raymond had personally invited Otto von Habsburg, son of the last emperor, Charles of Austria and Hungary, successor, in 1916 to Franz Josef, and forced to abdicate in 1918. A German member of Parliament for the demochristian party, in the then current
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context he upheld with great dignity an old tradition in its best part – the ability to have very different peoples live together.

Today, twenty years after the fall of the Berlin Wall, Europe once again finds in the East an essential part of itself. The disasters of the twentieth century must serve as a scarecrow for what must never happen again. In any case here is a new dynamic project for Europe and perhaps for Trieste, that unique city where the great matrices of the continent converge: Latins, Germanics, Slavs. It is a great challenge beckoning those who will know how to have future generations do better.
“England is an island!” With this exclamation pronounced on 14th January 1963, Charles de Gaulle put an end to Great Britain’s first attempt to negotiate its entry into the European Common Market. Indirectly, but in as completely effective a way, this sentence was instrumental in bringing about a decisive change in my professional career. I realised this many months later.

Arnold Hatter was working in Geneva as a researcher at the Battelle Institute. It was a laboratory that counted several hundred collaborators. At the beginning of the seventies about a thousand of these were permanent staff. The centre formed part of a larger institution, the Battelle Memorial Institute (BMI), founded at the beginning of the thirties thanks to a fund of about two million dollars bequeathed by Gordon Battelle, who was to the United States steel industry what Krupp was in Germany or Schneider was in France.

The mission of the Battelle Institute that had begun its work in Columbus, Ohio, was to make itself available to industry and also to other private or public institutions for carrying out research at cost price. The results and licenses belonged to its clients. Exceptions could occur however when research financing could not be found for a good idea and then it was necessary to run the risk in house: such, for example, was the case, at the beginning, with what was called xerography (the Xerox photocopier).

It was the Battelle Institute that introduced the age of not only technical, but also of scientific and economic research on contract. Starting from the steel sector its activities spread, especially after the Second World War, to every sector of technology, from soluble chocolate to solar panels, through surregenerator nuclear reactors. Between 8000 and 10000 projects were carried out in a year by about 6000 researchers in four large laboratories, such as those at Geneva, plus a series of smaller ones, for example in the oceanography field. Today the Battelle structure has changed – little research is carried out in Europe – while in the United States today the Institute still has more than 6000 researchers.

Let us return to Arnold Hatter. He was an Englishman with a strong social conscience. De Gaulle’s comment struck both his heart and his spirit. Yes it was true that England was an island and that in a Europe then being formed this became a sin. General de Gaulle was right. Amends had to be made, bridges had to be built; maybe the channel had to be filled in.

So it was that Mr. Hatter began to write letters to the European movements. He sought contacts and actions to set about finding a remedy for what de Gaulle had said and which he personally felt to be justified.
One of these letters reached the secretarial office of the European Federalist Movement in Paris and was forwarded to me in Zurich. I made a telephone call to the writer and he came to visit me. I had become angry. For the federalists of that time de Gaulle was certainly not an example of a good European. They hoped for a contribution from Great Britain and thanks to the country’s democratic tradition it could contribute to transforming the Brussels institutions such as the Parliament and the Executive (the Commission) through direct elections.

I tried to alleviate Arnold Hatter’s sense of guilt but it was not easy. The subject was changed and the conversation turned to his work as an economist at Battelle Geneva in the sectors interested in new technologies. Overall, economic research concerned less than 5% of the Institute’s total business and an important part was located in Switzerland, including the sector involving macroeconomic models (input-output). For my part I described my work in the chemical industry to him.

This convinced him that I too should join Battelle and I pursued this objective for over a year. Although I was in agreement with him the very idea of Europe that had led him to me, was initially an obstacle to my consent.

Actually Arnold Hatter began by sending a memorandum to his group and department superior suggesting me as a collaborator. I was invited to Geneva for a first interview: everything seemed to go smoothly until I met the head of the department, a Genevan who bore the surname of a family written into the history of the city, and whom I met some years later in the United States when he had become scientific councillor at the Swiss Embassy. I subsequently met him several times in an amicable way.

At the time of our meeting, the European Community of Six had been accused of being a protectionist tool, contrary to the rules and the spirit of free trade agreements. EFTA (European Free Trade Association) functioned as a counterbalance to the Brussels Institution. In many countries, and in Switzerland above all, the ruling class feared the European “bureaucratic” organisation for many reasons.

Thus it was that, when the department head showed an interest in my European activities, in my relations with Professor Rieben in Lausanne, who with his European Research Centre was Jean Monnet’s contact, I understood that the circumstances were not in my favour. One cannot have the good fortune to play at being a pioneer without coming up against some inconveniences. I returned to Zurich, therefore, empty handed.

About ten months later I received an offer of a position with Battelle. A few days earlier a new Department Head had been appointed and Arnold Hatter had returned to the attack. He had lost completely with de Gaulle but had won with me. Poor consolation.

1. From Chemistry to Electronics

“Goodbye, engineer” he said. He was the director general and a textile engineer of an important thread factory in the Venice area. I had just finished interviewing him and telling him of a new process, based on static electricity, for manufacturing threads. Even though a certain generosity on his part might have been expected, it was the first time that I, though
by chance an economist, had been given such a title. I was first surprised and immediately afterwards happy to have obtained, in the field, a testimonial that to me was as important as my university degree.

It was 1970, five years after I had begun to work at Battelle. At that time I led a research group working in the textile industry that was beginning to do rather well. Although initially this had not been the case.

When they had hired me they had counted on my experience in the chemical industry where I had been very much involved with plastic materials. The economics department was beginning a weighty study on plastic materials in the building process. I learned very quickly, to my horror, that all those economists had limited ideas and knowledge about plastic materials and could not distinguish PVC from polystyrene. I therefore set about getting out of the project and fortunately they found a number of good chemists within the Institute to take my place. But they did not forgive me for sneaking out of it.

Since while in the chemical industry I had dealt with textile fibres they decided that I could take charge of a study dealing with this sector. The study was for a Belgian company and concerned assessing the market for electronic measuring devices applied to the main textile machines. More specifically it concerned – and this was worse – devices for measuring, at a distance, the temperature of a wire that passed at great speed in a heating pipe so that it could be twisted in such a way as to make it elastic (a little like a metal spring). The thread in question was nylon based (polyamide) and was used in the manufacturing of elastic fabrics for swimming costumes and some underwear products.

I was sunk in a black hole. I was not even exactly sure what electronics was. They suggested I reflect on what a radio was. I had never seen a textile machine and I found myself having to distinguish a loom from a spinning machine. I turned to Battelle’s textile machine expert, Maurice Poull – who would become my great friend and my companion in the adventure that is research. He was astonished by the level of my incompetence and he practically pushed me out of the door. I, however, kept going back, many times, openly admitting my ignorance, a technique that I would often use as my first line of defence.

During that period which lasted about three months I always had stomach cramps, and I probably just managed in time to avoid an ulcer. However, sticking to the habits learnt when I was promoting Montecatini products in sectors I did not know – although I was teamed up with an engineer – I began to make an implausible number of visits, up to five a day, in Switzerland and to other European countries, wherever I could enter an electronics factory, textile or mechanical. The name Battelle was a great help.

Little by little I learned many things, using a lot of prudence in my initial questions. After some visits I was able to risk questions such as “In other sectors or in other factories they told me this. Do you believe that’s right?” This question was also my way of hiding my own ideas, without the risk of having stupidities attributed to me. After twenty or thirty visits I began to feel more secure. Besides, Maurice Poull had finally accepted his role as teacher and explained to me the workings of the electrostatic spinning machines that he had produced.
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It was interesting to learn that the great majority of experts are willing to be your teachers, within the boundaries of what for everyone is a confidential circle. The advantage of research at Battelle was that one could explore new areas where, in most cases, there was no problem concerning so called industrial espionage. It was all about combining ideas and new possibilities.

There were borders that were not to be breached – it was a matter of ethics – but it was simply a case of remaining within the area of the profound logic involved in the examination of new products, procedures or new ideas that were not yet patented or licensed.

At the end of all these months of suffering I had managed to avoid an ulcer, at least from the psychological viewpoint. Maurice Poull had ended up welcoming me as a friend and came up with the idea of having me accompany him on his trips to non-francophone countries, including Japan, as his English, German or Italian interpreter. And so it was that without knowing it, I prepared for my informal exam at the Venice spinning mill.

During our travels this very rigorous and precise and often distant engineer revealed an enthusiastic nature for science, technology and also, deep down, for a certain kind of poetry. His passion to talk about things he liked would exceed the speed of light, the absolute of 300000 Km per second, I thought. He would devise plans for new solar panels to be used in space to produce energy, or again, ideas for making use of the air flow (pneumatic) in place of electricity flows for new command systems for machines (even for typewriters).

At the Battelle Institute Maurice Poull worked “too” well. While the researchers had to work in such a way as to spend, on average, 80% of their total work time on projects (billed to clients), he and his group reached 95%. He was not granted a medal. On the contrary he annoyed those who struggled much more to achieve a good average. Even Battelle Geneva, in the good years that I spent in this Institute, was an environment touched with human weaknesses. When the Geneva centre entered a period of crisis (I had already left by then) Maurice Poull found himself increasingly isolated. The principle of the use of static electricity in textile spinning which should have showered him in glory, had not obtained the hoped for success and he struggled more than a little to find new work. A modern literature is yet to be produced that is truly able to get to the bottom of the dramas and human adventures as they occur in the multiple and complex realities of our time, in such varied fields of research, industry and economic enterprises that constitute our daily lives.

Maurice Poull ended up back at Epinal, the city of his birth, where he had built himself a house. Years later his wife and daughter came to visit me at the Geneva Association. He had died. He had been repairing his car and had inadvertently put his head between a rock and the front of the vehicle which was at a standstill on a slope. The brake had not been properly applied and the vehicle had crushed him. His wife knew that I had greatly admired him and felt true friendship for him. She was so surprised that one could appreciate such an apparently solitary and closed man. It was clear that she wanted her daughter to hear something about her father that perhaps had been difficult for her to perceive. I did my best. It was the least I could do for my engineering “professor” to whom I owe the “diploma” obtained in Venice.
After my first “punishment” with a study on electronics for textile machines they palmed another one off on me: the future of the great cog wheels for the gears in Europe. This was not simple either, but I was able to begin to formulate the concept that, in certain conditions (for the great cog wheels, their high costs and their dimensions), their repair and return to service were the best economic and technical solution. When the cog of one of these broke, it was worthwhile to reconstruct it on the same wheel. Starting from this experience I formed my first ideas on utilisation and maintenance costs in the new service economy.

2. The Real Cost of Every Worker

At this point it is worth remembering a fundamental aspect of research at Battelle, which was also present in other analogous centres and particularly in many engineering companies. We are speaking of financial management.

What Battelle sold essentially were the hours of all the researchers and the other staff. Each one of us had an “hourly rate” based first of all on one’s gross individual salary to which was added a series of coefficients related to the hours of work undertaken to prepare and to sell new projects, downtime hours, ascribing hours when there were no projects, reserves where time on a project was exceeded, and finally, for the Swiss staff, the hours of military service. Account was taken of the costs charged to the researchers’ expenditure on cleaning and the volume of the offices used which were dearer in terms of the dimensions of the machines and the costs of the building designed to support their weight, particularly for mechanical and chemical engineering studies. There were of course administrative and contract services expenses and all the other necessary and utilised services. At the end of the day each of us, including the secretaries, counted up the hours spent on every project and, in my times, all the related costs anticipated that the salary of every researcher would be multiplied by three to arrive at the “sale price” to the client.

It was necessary therefore to assess the number of hours each one needed to spend on a given project within the most precise framework possible agreed in advance between the purchasers and the Battelle Institute researchers, in whichever country they were based.

The most efficient spent most of their time on projects and so accumulated reserve hours for selling new projects. This virtuous circle was well tried and tested and so inefficiency was quickly unearthed and punished. There were researchers who were hired but lasted no more than two months under this regime. Managing a division of 16 people was therefore, very instructive.

The majority of economic activities fall far short of being measured with these types of restrictions and calculations of the real cost of individual work.

It would be natural to think that a work system like the one at Battelle would be a source of continuous stress, but it also offered the advantage of being as honest as possible. There were few opportunities to exploit unclear situations or dubious excuses − often offered as being more sympathetic to “sensitive” souls in which all those humans, who count on others to draw from them the best personal profit at the least cost, delight. True sensitivity is that which bears the weight of necessary responsibilities.
3. Sheep and Woolen Carpets

“What do you think is done here at the Battelle Institute?” The question was put to me in a loud and threatening voice by the big boss of the whole Battelle Foundation, who had come from Columbus in Ohio.

In such moments the memory of my mother comes back to me: I cannot hear anything more terrible than her shouts when I was little and she got angry. Compared to her, the others, the big boss included, seemed fairly benign and this comparison always kept me calm. So I answered calmly, while looking at him in the eye: “Here we do research in the most precise, honest and scientific way possible”.

Next to him was the financial backer who came from the south and who had sponsored a large scale research on the world carpets market. The study, commissioned to Battelle in the United States, had been entrusted to me. Thanks to the fact that at Geneva, after some years of demanding work, and with the support of expert technicians, I had created an outstanding research group widely recognised in the textile field.

The study was particularly concerned with New Zealand where there were at that time, and probably still are, almost fifty sheep for every inhabitant, in a climate that, particularly on the North island, ranged between 12 and 24 degrees over the whole year, and where there was a great deal of natural pasture land. One could easily go into the city to work in an office and invest in land and particularly in the enclosures necessary for the confinement of one’s sheep, which got by on their own, apart from the times when they sometimes fell prey to eagles.

The particular characteristic of New Zealand sheep is that they are good for the meat market as well as for wool. This latter has a rough quality that it makes it especially suitable for carpets. The production of this wool, at least at that time, was very disorganised (there were many small producers) and it was sold through an auction sales system subject to strong variations from year to year. The main purpose of the study was to learn if these variations were due to contingent situations or if wool for carpets was destined to disappear over the more or less long term, and be replaced by synthetic fibres (especially the acrylic fibres). In this case the client, who had strong designs on the world carpet market, expected the New Zealand government to find a solution for financing the sheep farmers’ future, unifying the wool purchasing system for as long as this market survived, and abolishing the auction sales system, considered very disorganised and costly. In other words, a great public and private collaboration project.

After a long economic and technical inquiry it was concluded that wool for floor coverings still had a great future beyond the situation. This did not please the client. I had already had a long discussion in Auckland about the contents of the report but I had not given way on the essentials. After all if studies were encountered where the conclusion had been taken for granted the news would have become common public knowledge and would have stripped our economic research of all credibility. Others have fallen into this trap and in the end no one gained, neither the researcher nor the client.
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So, this client had taken the matter to the top and I had been summoned without warning. I resisted, again answered one or two more questions and after a few minutes they let me go. Thank you, mum!

I heard no more of the client nor of his criticisms.

Ultimately the whole story ended in a fair way. It is comical now to think that at that time we perhaps contributed to maintaining a rather important structure of New Zealand society and its farming economy.

At the end of my journey to the Antipodes for the final session on the study there were some interesting secondary aspects. Firstly there was the matter of taking six days off with my colleagues to go on a tour of the two islands from north to south, a trip that an agency suggested we do in 23 days. We flew over the southern fjords and the “Franz Joseph” glacier (for someone from Trieste it was a good omen!) and rented a car in which only the second and fourth gears worked. To go more quickly one of us drove, the second watched and the third got the next map ready. In turns. I remember some southern village street names in French (such as rue Viard) that recalled the first explorers of the place, who had come from France and then had been abandoned to their destiny, to be followed by the Scots and their descendants who currently form more than 70% of the population. The native Maori were fairly visible but formed only 10-20% of the total number of inhabitants.

As a final touch to our working trip a dinner was organised in Auckland and was attended by senior government officials. Another surprise: I discovered links with my childhood in Trieste. In 1945, after having been annexed to Germany as “Adriatische Küstenland”, the city had been occupied by the Jugoslav army of Tito who wanted to make it a seventh republic of his Federation. The Germans had resisted at the top of a hill in the centre of the old city before surrendering to the allied troops formed by battalions of New Zealanders. From the windows of the apartment where I lived I visualised them descending towards the centre with a band and in Scottish kilts. The Germans surrendered to them, forty days after the arrival of the Jugoslavs. Among the New Zealanders there were two officers with whom I found myself at dinner. They explained to me: “Why precisely us? To make things simple. There were fascists, Italian antifascists, Germans, Tito’s army, and dissidents. What do you have? We were told: go and occupy (or rather, liberate) the city and shoot at all those who try to stop you. It is too complicated to distinguish between them.”

We drank a glass of local wine to the memory of those times. New Zealand wine has become much better and is also greatly appreciated these days.

4. Demand Follows Supply

I had thus begun my work at Battelle as a project head and chance had opened the road to the textile field to me. Since my first experience with electronics and the measurement of the temperature of threads during manufacturing process I had kept the friendship of Michael L., a Belgian engineer who, without realising it, had taken the risk of trusting the study to us. Like his wife he was also a good pianist and so, once more I have an example
of the many people in our society who devoted themselves to technology, and still more to science while developing notable artistic tastes. Subtle links exist in the depths of the human soul that connect Mozart, mathematics, the stars, physics and even technology.

Taking advantage of the important development of the engineering department, I was able to increase the quality of the research done on fibre, fabrics and textile machines and the research group that consisted of half a dozen engineers.

Sometimes this led us towards new neighbouring areas such as that of footwear. At that time there was a great hope that it would be possible to use synthetic material (polyurethane) in place of leather. The principal problem with natural leather lay in the diversity of the animal hides used, in that every beast had a boil, a small wound or imperfection somewhere. Even the best machines for cutting the hides for footwear didn’t easily manage to work on industrial mass production. So consideration was given to this new material which, it was thought could be harder wearing, easier to work, homogeneous and breathable. At the beginning it was even hypothesised that the new qualities hoped for from the materials would permit the development of a market at a higher price compared to leather. Leather however held its own well against these attacks for footwear that covers the foot completely: even today, it is impressive how it combines softness, protection against rain, and maintains an excellent degree of ventilation.

Once these limits were established we explored – as did other industrial research centres – the sector involving footwear in which the feet could put up with not breathing as they do in a normal shoe. It was the beginning of the market for modern ski boots of which the specialist in my group probably still keeps a prototype sample sent by the client as a gift. The next stage involved tennis and sports shoes in which several materials were combined and from which the prevailing fashion was born, a fashion followed by the majority of young people and by those who want to appear as such, to the advantage, though not always, of price and comfort. This progress came about essentially as a consequence of the possibilities of a new industrial production subsequently accepted by consumers. Demand can only follow supply, as it always happens, though always maintaining freedom of choice. Another case very similar to footwear was one concerning jeans.

There were many studies dealing with machines for knitwear, fabrics and the products deriving from them. Specialisation and productivity went along step by step with the reduction in the kinds of fabric that could be worked by every model of machine. An aspect of the phenomenon of diminishing returns of technology began to appear which I will analyse later.

Some ideas are developed through analogy in an unexpected way.

So it was that textile production methods one day found an application in a project concerning the creation of synthetic meat. Starting with a paste based on petroleum (which is after all of vegetable origin) a means was sought for making it appear as close to meat as possible. By squeezing this paste through a strainer, not very different from those used for spaghetti after cooking, fibres were extracted from it. These were then intertwined to obtain a piece of meat the appearance of which was acceptable to the naked eye. At the basis of this
process of mixing the fibres was a kind of hair dryer whose hot air flow could be regulated and the fibres put in order. After which the researchers had a meal of synthetic steak.

I cannot forget the research commissioned by the Swedish Agriculture ministry. It concerned the production of starch in a factory in the southeast region of the country, at Malmö. This starch used a special variety of potato produced in Holland as its raw material, while usually corn was used. Well then, Sweden was not part of the European Community and was concerned about knowing whether they could always be sure of getting the Dutch potatoes without having to face the obstacles created by the European agriculture policy.

At the presentation of the study in Stockholm, besides the interested Swedes the President of the Dutch Farmers Federation was also there. After the discussion we were offered a Swedish dinner. It was very convivial with vodka and a variety of canapés. It was very pleasant. My Dutch companion however, alone with me in the midst of a dozen “vikings” who had begun to sing, approached me and whispered in my ear: “These northerners are strange, very different from us southerners…” I could have hugged him! He had adapted to me, an Italian from the “South” like him, Dutch. Long live Europe!

5. Space, Oceanography, Fertilisers

During all my years at Battelle the textile sector was my main and most expansive battle field and this allowed me to reach a certain financial stability. And so I tried to explore other sectors, but with minor success.

In 1968, I published my first book on the conquest of space and Europe. My proposition was that the space programme should be introduced into the European Community, bearing in mind its technological and symbolic importance.

Together with an aeronautical engineer we carried out some studies on business planes. More interesting however was a job carried out for ELDO (European Launcher Development Organisation) which at that time represented the European effort to create space launchers. A short time later ELDO was absorbed by ESA, the European Space Agency. Our study concerned the detailed analysis of ELDO’s programme, of all that had been done and the reasons for some failures, sometimes due to difficulties of varying nature created by member States. When the organisation was dissolved a short time later the Secretary General departed with flying colours.

After having created a little research group in the aeronautical and space sector I tried to investigate the oceanography sector too. All the more since Battelle had some small laboratories in this area in the United States. I had been able to visit one of them that was devoted to fish farming. In this instance too I published a book in collaboration with Henri Loubergé, then a student at Geneva University, and Henri Schwamm who at that time was Secretary General of the Geneva European Culture Centre. With the help of an electronic engineer we took the first step with a research project on underwater measuring instruments for a French agency.
Bearing in mind my previous experience in the world of chemical fertilisers industry, I had greater success with a small research group on liquid fertilisers. That was one of the studies that led me to reflect on the evolution of contemporary economics. In the constant search for efficiency and productivity it was clear that injecting land with fertilisers in liquid or even gas form could offer some advantages. Although this form of spreading is still used it presents an important number of logistic limits: the shape of the land and above all the need to invest in machinery that can only be used for three to six weeks a year.

It is here that the economic notion of use appears, or rather of utilisation over a period of time (not always determinable). The real cost of the performance began in that case too to modify the economic aspect of this kind of problem. This is without counting the increase in vulnerability because liquid fertilisers must be injected in the absence of rain, otherwise their loss and draining away through the various strata of the soil result in still greater drawbacks when compared to traditional chemical fertilisers.

These activities in the textile and farming (fertilisers) sector led us to carry out studies such as those on the possibilities of the development of trade among the Maghreb countries (Algeria, Morocco and Libya). For various reasons their economic integration still remains rather far off, but it was interesting to observe various attitudes. In Algeria for example, when an official car brought me back to my hotel and I tried to give the driver a tip he would refuse saying: “No Sir, we have had the revolution here!” A certain rigorous revolutionary spirit (French style) had remained.

In Libya – it was still the El Senussi period, that of Gaddafi’s predecessor – I had been given an appointment at the Ministry of Industry and Petroleum. After noticing several American and Dutch officials, and having waited for two hours, I was introduced to a top Libyan manager for whom it was important to underline to me, an Italian, the fact that Libya was independent from Italy, its old colonising country. I was not able to resist the temptation to tell him that they had nevertheless retained too many Italian habits, such as that of making an appointment and then not being punctual.

Well or badly, and ultimately it was pretty well, all those activities had ended up providing work for about fifteen people. I was ready to become a division head and for that reason a group specialising in macroeconomics and particularly in input-output models was added.

This group had a financial deficit in its accounts that the excess from my activities partially covered. “Right then, let’s begin,” I said, since macroeconomy had an excellent intellectual tradition at Battelle and I could learn new things. The most interesting thing is that in 1972 we were asked to create simulations on what would happen to the economy if the price of petrol should be doubled or tripled. At that time this hypothesis seemed rather strange to us, but a year later the price had quadrupled. The 1973 crisis had begun. An even stranger fact: our simulations demonstrated that given the utilisation of petroleum in all industrial and commercial uses, inflation would increase by one or perhaps two percent. We had thus reached the end of the long period of growth – 6% a year on average, at least in the so called industrialised countries – that we had known after the Second World War. Starting that year,
growth in these countries swung between 2 and 3% annually and the rates of the Glorious Thirties were forgotten without anyone, economists included, asking too many questions about the reasons for this change. So I began then to work out an explanation for this which I will deal with in another chapter.

Within this macroeconomic research group I formulated a subject which was to prove essential when I changed employment. André Gabus, who together with Emilio Fontela, the department head, had, over the years, developed input-output models, had also contributed to the creation of the Battelle Geneva pension fund system. So we began to suggest some studies to the outside world on savings and retirement.

6. A New Philosophy of Productivity

All these studies and research projects always fascinated me, both for their content and as indicators of economic and social evolution.

Until the end of the seventies technological progress had followed a linear development. It was making every system quicker, bigger and more effective. It was the rush to the economy of scale.

We witnessed the passing from a 200 seat plane to a 500 seat one (the Boeing 747) and a 1000 seat plane (the Galaxy) was considered. In chemistry tanks or reactors capable of containing or producing 3000 and even 5000 metric tons a day instead of 1000 were contemplated for the large intermediate products such as ethylene.

I remember as technical and economic study for the development of a machine capable on its own of producing 500,000 blankets a year, provided that they were all equal of course. Each blanket would have cost the consumer less than a kilo of apples. However it was a case of a totally false gain. The production machine itself required little space, 200 square metres would have been sufficient. However an enormous space would have been needed to store the raw material and a still larger one to stack the blankets. The distribution costs of this product became enormous: to dispose of all those blankets it would have been necessary to sell them at least throughout the whole globe. While the production costs might have been laughable, those for the services (warehousing and distribution) represented over 90%. The same type of problem had already appeared with the 500 seat aeroplane: the cost per passenger in flight certainly went down but the cost of his getting into the plane, baggage handling and all the other service functions increased more than proportionately within the overall costs.

In 1970, we carried out the first very detailed and in depth study in Europe on nonwoven fabric which gave a good indication of the passage towards a new philosophy of productivity. At that time, several chemical companies dreamed of finding a new product, like nylon in 1938, or later the polyester or acrylic fibres, or again polypropylene which in the years of their launch brought about great upward spikes in sales and profits. This evolution had slowed down and belief in the possibility of inventing a fibre that could replace cotton or wool had also receded somewhat. The development of fibres based on carbon polymolecules was also significant: they stood up to over 500 degrees of heat. Very useful for resisting the
temperatures at the nose cones of aeroplanes that flew at supersonic speeds, but of little use for making underwear or personal clothing out of them. By this time mixed synthetic fibres in particular were multiplying, in the search to eliminate some defects such as static electricity, found in nylon which produced a clearly audible crackling when there was friction against fabrics of that material. With time good solutions were found, including in the colouring and printing of fibres and of plastic materials which were still an important problem in the sixties. When naturally elastic fibres were developed, the increasingly specialised and globalised market offered few opportunities to more than one or two world producers to realise gains on their investments.

At a time when the term “ecology” was completely unknown except in some branches of biology, there was still a tendency to openly seek systems for reducing the life span of products that had the advantage – it was said – of eliminating costs and repair and maintenance problems and in the case of textiles eliminating those of washing and cleaning. So the “use-and-throw” watch, suit and underwear were examined.

Nonwoven fabrics were nothing new; felt had already been produced at the time of the Roman Empire and even earlier. It was a case of seeing what could be obtained using paper making techniques, utilising textile fibres of all kinds with the addition of a consistent quantity of glue. The basic idea was to utilise much longer fibres than those used to make paper, for example cotton, wool and synthetic fibres in order to eliminate the fibre making procedure and obtain fabrics, or better, finished textile products. And so “use-and-throw” underpants and underclothes began to appear in the shops. There are still some products around from that period, such as certain kinds of cleaning cloths including those for cleaning car windows or napkins and tablecloths some of which are practically made of paper. Traditional very low cost fabric products however still represent dangerous competition for the nonwoven fabrics. Even whole suits were made from nonwoven fabric but they were not successful.

The decisive case that put minds at rest and ended the hopes of assisting at a true revolution was that of the sheet. It was calculated that over its life span a sheet was washed at least fifty times before being thrown away. What a business coup if they had managed to persuade families to buy 50 use-and-throw sheets instead of one traditional sheet at a much lower price per unit! It soon became clear, however that while on the one hand the family could rid itself of the mundane task of washing there would have to be an extra room in every apartment for storing the sheets to replace the used ones. And maybe even a machine to compact them and incinerate them after use. All this just became absurd and demonstrated the limits to a certain kind of extrapolating the logic relating to production and maintenance. These sheets found a market only in specialised areas, for example in hospital operating theatres where there was the risk of contamination.

7. The New Service Economy

This kind of example, apparently insignificant, is in fact emblematic of a period during which the reduction in production costs of any object had to take into account the relevant growing costs in the utilisation phase. Moreover, ecological sensitivity and some simple
problems relating to waste management at every level, from domestic to industrial waste, weighed more heavily on the balance sheet relating to economic costs after use. Furthermore, in this last case the weight of some of the negative consequences of technological progress began to be felt. It was a benefit and it was useful to have products such as plastic materials that offered improved resistance, but this quality became a defect when it came to the waste disposal phase.

In economic analysis terms, when these problems spread, from the first half of the sixties, it was no longer possible to speak of living in the Industrial Revolution age, but rather in that of an economy based on service activities. The New Service Economy had been born. If one adds the investment in research, in marketing, in safety and in training – all service activities – to the cost of the use and of waste disposal it can be seen that in every sector of business, for every “production” activity, three quarters of the average expenses (whether it is a car, a suit, a bottle of drink or a computer) are determined by service functions and a quarter (often much less) by the production of the material object.

It is not only in the case of use-and-throw products that an important change of direction occurred at that time, even though since then the life span of a certain number of products has continued to be reduced as part of a sales strategy. It has become clear that there has been a great change in the whole energy sector. At a time when the dangers of nuclear energy were just starting to be spoken of, it was thought that the new atomic power stations could be absolutely safe and at the same time produce energy at a good price. I spent two weeks in a Battelle Centre in Seattle, in the United States, on a programme of what today is called continuing education, together with other researchers from the Foundation. Not far from there, there were General Electric’s old laboratories, those specialising in the sector dealing with surregenerator nuclear reactors that had been studied by Battelle. In this context I began to discuss and carry out projects on the consequences of a significant drop in the price of energy. The idea was to transform a good number of chemical processes into thermal processes. The Seattle experts were not very optimistic and in any case, two years later the terms of the debate on energy, and on nuclear energy in particular, would be radically changed. An awareness was growing concerning the problem of vulnerability and the cost of managing the waste that had subsequently given rise to an in-depth debate which continues today.

All these experiences had, in 1973, opened me to the idea of a new change of job which was fairly radical, even though after my Battelle experience I remained essentially a professional researcher and manager. For seven years I had done hard but rewarding work. I had worked and often put forward proposals, sold, presented and carried out projects all of which were meaningful, even those that had had negative results. And all this for 110 companies in 19 countries on 4 continents.
“Could you come and take some notes? And while you’re at it, have someone bring coffee”. So began my adventure with the Club of Rome: I actually entered through the service door. This invitation was put to me by Hugo Thiemann, Director General of the Battelle Institute of Geneva. A few months earlier I had sent him my book on Europe and Space and he had been impressed by it. It was June of 1968.*

The previous March he had taken part in a meeting in Rome organised by Aurelio Peccei at the headquarters of the ancient Accademia dei Lincei, when some of the participants had given their agreement to the founding of a think tank to be called “The Club of Rome”. For many years its President, it went without saying, elected without a formal vote, was Peccei himself, until his death in 1984.

Hugo Thiemann had invited the managing committee of the Club to hold a meeting in Geneva, at the Institute’s headquarters, route de Drize in Carouge, a city of Sardinian origin, which formed part of Savoy, forming a kind of advance frontier post at the time when the future kings of Italy were still sovereigns straddling the Alps between Savoy and Piedmont.

The huge Battelle park, with four main buildings and several small laboratories which accommodated a thousand staff between researchers and other employees, was a symbol of a period rich in research and thought. Thiemann was a physicist. Before the Second World War he had contributed to the development of the cathode tube which would be used in television sets. Thanks to these noble titles, the Battelle Foundation, Columbus, Ohio, appointed him Director General of Battelle, Geneva, right from its founding in the 1950s.

Aurelio Peccei had a great deal of industrial experience. Before the First World War he had worked in China and spoke a little Chinese. During the second conflict he had been one of the leaders of the anti-fascist resistance, and had risked being shot. Having worked for Fiat after the war he played a part in the normalisation of that great company which for many years was run by Valletta. Valletta with the intention of making the most of Peccei’s abilities, had sent him to Argentina where he developed Fiat’s investments and business, and also set up a large society for study and economic promotion in that part of the world, the ADELA.

On his return to Italy in the 1960s he became Vice President of Olivetti and of Italconsult (a very important consultancy firm) and began to devote himself to the study of social questions. His priority was to show that the world had become smaller and more interdependent:

--- Chapter 5 ---

The Club of Rome and the Limits to Growth

*L’Europe et l’espace Centre de Recherches Européennes, Lausanne, 1968*
The Club of Rome and the Limits to Growth

any event that took place in any part of the globe could have ever greater, significant and even serious consequences anywhere else.

The main danger was allowing the confrontation between the Soviet Union and the United States to explode in tragedy, added to which there was the problem of economic development in the world, the fight against poverty and all the possible conflicts and confrontations that could provoke global disasters. In 1969, through Macmillan, Peccei had published a book called Chasm Ahead (Sull’orlo del baratro) on the crises the planet would have to face. He did so in order to create a debate and find solutions. All of this led to his being the inspirer and organiser of the Club of Rome, supported in particular by Alexander King.

Alexander King was the Director-General of OECD in Paris for scientific and technological matters. King was a Scottish scientist, generous and tough, a member of an ancient clan that had fought against the king of England. He recounted how his family had lost their final battle and had had to change their name and take the name of the winner “King”. Alexander King contributed greatly by introducing to the Club of Rome the awareness of the role that science and technology could have in social development. He was however against their misuse.

Among other promoters of the Club there was Saburo Okita whose constant presence was particularly interesting. He had been an economic adviser to the Japanese government and later became Foreign Minister. At that time Japan was enjoying full economic growth.

Eduard Pestel was Minister of Science and Technology in the State of Hannover and a university teacher. As President of the Volkswagen Foundation he was to have an essential role in the preparation of the first report of the Club of Rome.

All these figures were the most consistent at the Geneva meetings which on average took place every two months. Peccei did not want too much bureaucracy in the Club. So much so that the statutes were not deposited till many years later. The members were simply coopted, with no fee to pay, on the basis of a confirmation of their commitment, or rather, as Peccei used to say of their “human quality” (he even wrote a book with the same title). The number of members was limited to one hundred, and this remains a strict rule to this day. There has always been a commitment to having every part of the world and every opinion represented.

1. Revealer of a State of Mind

The Club of Rome was founded in April 1968, just a month before the events of May. The unrest demonstrated by students concerning the economic and social evolution was to some extent shared by the management of the Club of Rome. The events were sensitive to the problems of the times, oblivious to the storm that the Club had unpremeditatedly provoked, becoming a kind of revealer of the true state of mind at the various levels of the population, even those under the communist regime.

The founding meeting apart, over several years I took part in all the executive Committee meetings in Geneva and in other cities. I had begun by arranging for the members to have really hot coffee. Then I used to take notes of the decisions and as a first important step I
organised the first conference of the Club of Rome in Berne on 29th and 30th June, 1970, with the help of the Swiss Department of Federal policy, whose support Hugo Thiemann had managed to obtain. Once more I did not ask for payment for this work since the Club of Rome was completely informal. My textile section at Battelle was doing pretty well and had sufficient margins to permit it to be the mainstay of this event.

2. The Limits to Growth

Hasan Osbekhan was charged by the Club of Rome Executive Committee with preparing a project that would describe and analyse the world “problems”, and launch a debate on possible solutions. Osbekhan was an intellectual who had produced some reports for the OECD in Paris on how to think and develop a modern economic plan. He was brilliant, hot headed, of American nationality, the son of an ex-Turkish ambassador to Italy. At the beginning of 1970, at Battelle in Geneva, he finished drawing up his project of over 77 pages, almost completely devoted to the matter of a method for identifying the problems and highlighting their interdependence at the world level.

This project was presented to the Club of Rome Assembly in Berne in June, which was attended by about forty industrialists, politicians and researchers. Immediately before the assembly opened there was a small incident. Hasan Osbekhan, with unexpected frankness, declared that his proposal had no more than a 3% chance of resulting in anything concrete, or rather in anything positive. This unleashed the anger of Eduard Pestel who had promised his help in finding financing. In this odd crisis situation a miracle occurred. Among the participants was Jay Forrester who ran the MIT (the Massachusetts Institute of Technology in Boston) Sloan School of Management. He took the floor with a certain brashness. He stated that he already had a method (called systems analysis) capable of putting together the ideas expressed in Aurelio Peccei’s book and all those being discussed at the meeting. He promised to supply, within a few weeks, a first result of the study, and not just a proposal. Hasan Osbekhan’s proposal was dropped at once and the opportunity taken up immediately. The first Club of Rome Assembly, historical in every way, had been saved.

On the plane that took him back to the United States, Forrester drew up the basis for what would become the famous report to the Club of Rome on the limits to growth. He brought together in one model the world tendency toward population increase, industrial investment, technological development, the use and depletion of resources and the increase in pollution. All this with graphs illustrating that within about forty years an unsustainable level of development would have been reached that would have led to a blind alley, or worse, a planetary crisis.

In July, four weeks after the Berne meeting, this preliminary text was sent to the members of the Club’s Executive Committee, who, in August went to MIT. They came back very satisfied and definitively subscribed to the project which Forrester then entrusted to his assistant, Dennis Meadows.

The substance of the report was already in place, but it was a matter of perfecting the simulations, checking the data, for example the available figures on population, availabil-
ity of resources, investments and the foreseeable technological development. The model highlighted, even more than Aurelio Peccei had done, the increase in pollution. This plus demographic increase and their negative effects on growth became the key points in all the discussions that followed.

That year, 1970, and during the following two years, up to the publication of the report, Forrester’s results did not produce any particular reaction. I also participated in some meetings that Meadows had organised in Boston with some specialised centres, for each of the key sectors being examined by his work, such as those studying demographic evolution or that of investments. I never came across any negative reaction or criticism apart from a few.

At that time average economic growth was still at 6% and this study was no more “curiosity-inducing” than the one undertaken at Battelle to examine the hypothesis at least as “abstract” at that point, of a quadrupling of the price of petrol.

3. A Bolt from the Blue

So it was that in 1972, immediately after the publication of the report “to” the Club of Rome on the “limits to growth”, everywhere and at every level there was a thunderbolt in the middle of a clear blue sky. The world was inundated with articles – often written or inspired by economists. Loudly and clearly, they denounced the falsity and deception of the report, even attacking the very idea of a crisis or of a slowdown in growth.

For some economists it was simple, and soon dealt with: as soon as a resource became rare, and therefore more costly, the increase in price would stimulate research which would in turn supply new solutions.

While having my own opinion of the report I was astonished by this unquestioning attitude that appeared to hold that even the most fundamental research was, in a modern society, merely a factor within the economic system. The authors of these articles believed that discovery and invention were merely a matter of short term investment. Apart from some exceptions, there was a belief in a modern form of magic. Why then were electric cars not widespread (they had come before cars with combustion engines) after more than a century of trying to make them so? Or why hadn’t the problem of cancer been resolved?

It seemed clear to me that certain economists excluded the reality and experience of research and technological development from their analysis demonstrating how production (the offering) could be subject to conditions or limitations (rigidity). In this there was a weakness of traditional economic theories, and the harsh attacks by some economists were concentrated on one point: according to them the Club of Rome underrated the infinite, or almost infinite capacity of research. According to me they no longer spoke of research or science but of the myths concerning them.

Let it be understood that it wasn’t a question of rejecting the immense progress made by science and technology in our times, but to me it was disappointing to speak of them as if progress were a supernatural activity divorced from every specific analysis.
The controversy quickly turned to the emotional and ideological aspect. It was excluded that the debate on growth could take place outside traditional economics, partially based on the mythical view of science. More than thirty years later there is still no in depth analysis about the reasons for which in 1972, it was considered normal that growth should stand at 6% and now, after four decades, we are cheered by a growth of 2 or 3% and lament if it gets down to 1% or less. In 1972 there were tears if it fell below 5%, at least in the so-called industrialised countries.

Almost no one noticed that the report projected that the crisis would come about forty years later, i.e. after 2010. Stranger still is the fact that, when Dennis Meadows rewrote the report about ten years ago, reviewing all the figures, he did not find any great changes to be made to the text of thirty years earlier! The updated book passed unobserved. In recent times numerous works have been published in English. Even the English weekly, “The Economist”, (one of the Club of Rome’s main detractors at the time) has analysed the problem of a possible shortage of petrol within ten years. Today, therefore certain hypotheses are more easily accepted, if for no other reason than to stimulate the development of new sources of energy.

The controversy over the Club of Rome report didn’t remain a debate among economists alone. While in the European Community Commission in Brussels Sicco Mansholt took up, and actually broadened the considerations about problems concerning ecology, Raymond Barre and others condemned the report, which by posing the problem of an economic growth reduced to zero risked disturbing social peace. For his part Georges Marchais, Secretary General of the Communist Party, denounced the Club of Rome as a conspiracy of the industrial right to undermine salary negotiations.

The attention on the Club of Rome was immense. The book was translated into about ten languages and over ten million copies of it were sold.

Citations naming the Club of Rome regarding growth, ecology, demographic increase were found even in scholastic text books. It was glorious. Unexpected!

One of the most notable things was the number of fierce articles denouncing what were defined as the Club of Rome’s thesis and, at the same time the fact that in these articles public opinion spotted the positive aspects, in favour of the Club. The message got across in negative form. At the end of the day it was public opinion that adopted this report to express something as yet vague, but that with time would become more precise: ecological concerns, population explosion and its consequences, the opening to a development that today should be “sustainable”, i.e. respectful of resources and the environment.

At that time there were other books and other personalities, such as Ivan Illich, that expressed similar concerns but the Club of Rome had become a legend. Like all legends, it did not completely match the reality, but rather it matched the perception of a large public, of all social classes, political leanings and intellectual levels.

Even in Moscow there was interest in the report: one never knows. Although Georges Marchais was against it, some soviet intellectual thought it was worth seeing from close up if “The limits to growth” might not be the long hoped for sign of a crisis of capitalism.
Dennis Meadows and others were invited to some debates in the Soviet capital. After all Aurelio Peccei was always strongly in favour of establishing communications between the East and West. Another of his initiatives, with other members of the Club of Rome, had been to contribute to the founding, in Vienna, of IASA, a centre for scientific studies based on the analysis of systems in social sciences.

I remember a letter of Jan Tinbergen to Moscow in which he rapped them over the knuckles for having tried to find a Marxist-Leninist way to the new “crisis of growth”. Tinbergen himself—a truly great economist—later presented a report to the Club to underline the fundamental importance of including the question of underdevelopment and poverty in the world among the “problems”.

Much later, at the time of Yeltsin, as a member of the Club of Rome I participated in a meeting in Moscow with some important Russian politicians, including Gorbachev. I made my modest attempt to suggest a knowledge of the new service economy. I have to confess they were not ready to listen to lessons.

4. The Myth of Zero Growth

In any case in 1972 the majority of the members of the Club of Rome had been taken by surprise. Not even Peccei or King had expected such a success. After all they were human beings, happy to be “members” of such a famous Club. Probably a good half of them, or maybe the majority, trembled at the idea of being seen as those who had recommended “zero growth”. The Club repeatedly mitigated this position, putting more emphasis on environmental and population problems. The myth however had stuck to the expression “zero growth” and few members resigned because of this label. In fact there was more than one who, having abandoned the Club, boasted, in their elections posters of belonging to it.

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So the Club of Rome stirred up a furor in 1972, turning the concept of economics and the meaning of growth upside down, and contributing greatly to reawakening an ecological conscience. The father was not completely aware of his gesture, but the baby was there.

The more they insisted on saying and writing that the data in the report were false, the more they ridiculed the research method (even on the occasion of a debate in the CERN auditorium that filled the hall), the more the news spread around the world: there could be gaps between traditional economic growth and the need to develop people’s wellbeing and to fight effectively against poverty.

From these facts I drew a personal conclusion taking account of my experience in industry and in technical-economic research: re-reading the great classics of economics, from Adam Smith to John Stuart Mill, by way of Marshall and Schumpeter, I began to realise that these authors’ best questions, posed in the context of contemporary economics founded on service activity, should find other answers in order to envisage a more efficacious strategy for the development of wealth and wellbeing. I realised, for example, that some of the needs of ecologists, including Ivan Illich, concerned problems already dealt with in the founding texts
of classical economics. And yet, for a long time the majority of official economists hadn’t
deigned to follow the reasoning of the “greens”: the reasoning of these economists in fact showed, and often still does, that they possess a limited knowledge of the real workings of industry and they misuse recognised economic language, something that allows economics “experts” to turn up their noses at them.

On the other hand, the “greens” on the whole limited themselves to labelling down the economists as being obtuse, and did not take the opportunity to complete or improve economic theory by extending the notion of value and the wealth of nations. Too often everyone, greens and economists alike, remain comfortably self-satisfied. In any case, public opinion had its little cultural revolution, at least in relation to the evident problem of the growing production of refuse in every possible form, including the most costly and dangerous. Can expenditure on the treatment and management of refuse continue to be counted as an increase in “value added” because it involves turnover and increases the Gross Domestic Product?

This example should not be taken to mean that all economic measures can only be off balance in a negative sense. When economic development produces useful goods and services at little or no cost (because they induce unpaid activities or services), the measurement of the GDP remains almost untouched, while the real wealth of everyone can be increased. How many discussions would I have had on this point with a member of the Club of Rome who had been director general of the mega French electrical and electronic group, Thomson!

With regard to this great debate on growth, my main stimulus was to observe in detail what was happening within the various economic organisations in which I had carried out my work for a significant number of years. I will return to these questions in a more detailed manner in the chapter devoted to my university activities.

5. Strategy for Tomorrow

After the publication of its report on *The Limits to Growth*, the Club of Rome continued to distribute a whole series of them right up to our day. Of course none of them achieved a success comparable to the first. Eduard Pestel and Mihajlo Mesarovic of Case Western University in Cleveland (United States) edited a second report entitled “Strategy for Tomorrow” in reply to the criticism of the first report, stating that in it the perception and analysis of the world had been made uniform. It was an unacceptable criticism because it was about understanding the earth’s global limits in terms of the use of resources, demographic increase and pollution.*

This second report, introduced by Robert Lattés, tended to “regionalise” the world in order to assess crisis situations by continents or large geographical areas. It also sought to deal with the criticism of the notion of crisis of growth, suggesting the idea of an “organic” growth. This term defined an intention to research (what can ever be “another” growth?) rather than a concrete result to be made use of. At that time I wasn’t in a position to suggest the structured complex of ideas that I later built. Besides the Club of Rome had no more than two or three “rebel” economists through whom an in depth discussion on the real state of economic development could be lauched.

* See the ongoing reports at http://clubofrome.org
Reports then followed one after the other on analysing important questions on the global view of the world in relation to problems of training and education, the electronic revolution, reevaluation of traditional agricultural systems in poor countries, the problem of authority and many others. I too threw myself into the mix producing no less than three reports written in English.

Anyway, on the question of the economic crisis I would like to underline what I wrote in 1993: “That which in the 1970s was interpreted as a problem of limits to economic growth in general, increasingly appears to be the description of the end of the great cycle of the classical Industrial Revolution. The simulations by Jay Forrester and Dennis Meadows indicate precisely this, not the end of economic growth as such, but rather the end of a certain kind of economic growth, that are based above all on hardware and machines instead of on software and organisational systems, on tangible products rather than services of every type. Of course an important part of economic activity will always depend on tools and hardware, just as today we need agricultural products. Now, however, within most traditional industrial and agricultural sectors service functions predominate”. This changes the general theoretical framework of economics, fundamental if we are to plan a new positive development. To begin with “The Wealth of Nations revisited” should be rewritten.

The first one published in 1980 by Pergamon Press in Oxford, was also released in Italy in 1981 with the title *Dialogo sulla Richezza e il Benessere*.† The principal English publisher was none other than Robert Maxwell, head of Pergamon Press in Oxford, briefly a member of the Club of Rome and destined to end up badly some years later. He had the attitude of those the English refer to as tycoons. Of Czech origin he had adopted a name of convenience during the war and had been very active in the British Labour party. During the year in which he attended Club meetings, he initially had a very enterprising air and was socially open (after all he came from a decidedly left wing political experience). When witnessing the kind of debates that were held at the Club of Rome he was, I noticed, increasingly wide-eyed, and towards the end he would make small gestures of bad temper faced as he was with the obvious lack of interest, on the part of the Club of Rome, to get involved in business.

With my first report to the Club of Rome I had once again embarked on a rather demanding venture. I had no financial support and at the same time I had to keep my official job. It was enough to cause any good university teacher or researcher or serious laboratorian to tremble. The book had taken seed in the down time of my days, especially in airports. I would write on a seat in the waiting hall, or worse still I would record on my dictaphone. For my second report, *The Limits to Certainty – Managing the Risks of the New Service Economy*, published in French in 1989, I improved my work conditions, making use of texts written on some points I considered important and finding a collaborator, Walter Stahel, to put it all together and complete it.‡

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* The Limits to Certainty ETAS Libri, Milan: (Preface by Ilya Prigogine), p. 13
† Edizioni e scientifiche e tecniche Mondadori, Milan, Preface by Aurelio Peccei
‡ In Italian “I limiti della Certezza”. Affrontare i rischi nella nuova economia di servizio, ETAS LIBRI, Milan, 1993
6. Alvin Toffler, Michel Albert…

On the other hand this new book had been born as a project in an attempt to create “The Risk Institute”. Already in 1986 I had succeeded in setting up an organising Committee in Paris. Its members included Raymond Barre, the Nobel Prize recipient Ilya Prigogine (like Alexander King, a successor to Aurelio Peccei as President of the Club of Rome), who would write the preface to the book, Montague March, Director General of Business Europe in Geneva, Richard Piani, an engineer-inventor, promoter of new technological enterprises, Jean-Pierre Ritter, Swiss Ambassador to Vienna, André Danzin and Fabio Padoa. Also present were Alvin Toffler and his wife whom I had gotten to know well a few years earlier at a conference in Brussels organised by a large Japanese company, at the time when his theses on *The Third Wave and Future Shock* were causing a furor in the world, and particularly in Japan, where a two hour television programme and a comic book were made on the subject.

Alvin Toffler and his wife Heidi had been struck by my thesis and I had tried to convince them, even going to the United States for the purpose. In many respects I had done nothing more than directly follow *The Third Wave* analysis and I was hoping that he himself would decide to write a book to that effect. I had no pretension to appear as author while things said by him would have had an extraordinary resonance, even if economists avoided him somewhat. But it was seeking the impossible: to spread ideas through a world famous intellectual when they were not the fruit of his own labour was something quite unusual.*

In any event I continued to like this ex-militant Trotskyite who, in order to gain an in depth knowledge of working conditions had, as a young man, worked in the mechanics industry where he had gotten his hands dirty. It was there that he had met his wife who, from what she told me, shared his objectives.

I tried the same tactic with Alvin Toffler’s French counterpart, his equivalent from the point of view of the success of his books on the Industrial Revolution and its relationship between Europe and the United States, Michel Albert. I had already made contact with him once before when I was very young, and he was Director General to the European Community in Brussels. I then met him very often particularly during the time when he was President of Assicurazioni Generali, France, the second biggest French group in that sector. He was the bard of modern industrialisation and I tried to help him understand the insurance sector – an important branch of the service activity – destined to become a key centre of contemporary economics. And he, Michel Albert was the head of the AGF!

Courteously and calmly I tried to set out my thoughts and ideas, paying a great deal of attention. I couldn’t risk having those who knew my main work believe that I was a hot-headed intellectual. Little by little I noticed that Michel understood and appreciated some of my ideas but, as with Toffler I could not get him to take on the initiative directly or personally. However with his advice he helped me to begin my third report.

For the second, written at the urging of Fabio Padoa, Managing Director of Generali, I had at my disposal a certain sum that he had given me saying that it came from an “anony-

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* Something of it remained in his “Power Shift”, Bantam-Doubleday Book, 1990, New York, pp 80, 482
mous benefactor”. Fabio Padoa had been President of the Geneva Association, my last great work adventure, for seven years. Fabio, diligent and personally committed to the work, received no payment for this, apart from reimbursement of expenses. It seemed to me that the sum put at my disposal for my report was none other than the total of the expenses in question. He did not admit this to me, but I felt I should report this example of an “honest man” in the hope of encouraging others and of refuting those who, before they even have an idea, ask if there is funding for it.

As it happened this money was not much needed. I had actually found a skilled American “researcher”, a descendant of Francois Villon. I had supplied him with some ideas and some articles and conference texts and he had the task of preparing the report on risks and vulnerability in the modern service economy. But right at a point when he was about to start a chapter on illnesses and medicine, he died of AIDS.

I took my notes back, extended them and found another solution with my principal collaborator at the Geneva Association. After all, this book served to illustrate the key importance of risk management in the modern economy, and hence of the necessary growing role of insurance, on the basis of an ‘analysis’ that no insurer had ever suggested.

Considering the working methods of almost all the insurance sectors, I have had the privilege of being able to make use of a unique analysis observatory to study the evolution of the service economy.

7. Full Employment in the Service Economy

The third report on “full employment in the service industry” published in French in 2000 with a preface by Denis Kessler benefitted from a favourable combination of circumstances. Ricardo Diez Hochleitner had become the President of the Club of Rome and in 1998 a Bilbao Regional bank wanted to celebrate the anniversary of its founding with a book on the subject of employment. It was an opportunity to reflect on the service economy in relation to this fundamental problem and there was enough to pay an assistant for a year. I had the good fortune to find him thanks to a casual conversation with a German friend who worked for Bosch: he knew a capable young man, Patrick Liedtke, and he it was....*

Patrick Liedtke had the advantage of being perfectly bilingual in German and Spanish, to the point of changing tone of voice and gestures as he passed from one language to the other! The original text had been edited in English and I supplied him with a series of notes and articles on the service economy and some ideas on the subject of employment.

We did not find a good English publisher, instead the Spanish edition was published twice and the German one in particular appeared on the economics “bestseller” list in Germany for a few months. My new collaborator was very efficient and even appeared often on television, not to mention articles in the German press, conferences and also a few debates with some leading German politicians.

* In Italian: Come lavoreremo”, Franco Angeli, Milan, 2000
In the next chapter I will return to the contents of this report and those of the others. For now suffice it to say that it proliferated.

Actually another member of the Club of Rome, Mircea Malitza, a Romanian scientist and a very cultured man, had the idea of linking some of the ideas put forward in the report on work with the subject of university training and continuing education in our society. To him we owe the idea of “The Double Helix” (the famous definition given by Cricks and Watson to the structure of DNA that is the biological basis for all living beings), applied, however, to the fact that in today’s world, work and training are destined to be combined and developed symbiotically for every one of us throughout our entire life cycles.

8. Specialisations Brought Under Discussion

The problem of life cycle and education requires an in depth debate, not only about teaching methods and techniques but also on the subdivision of knowledge into specialised disciplines. If it is important that everyone be a specialist in at least one subject or sector, it is even more indispensable that they be open to every contiguous subject or specialisation. After all, the wine in a bottle is the result of a collaboration between the glass industry and wine production. Every house is the result of the contributions of dozens of trades. Technology raises the level of complexity of every system, often modifying them at various levels in line with innovation. It is essential that education be better directed to the solution of problems, something that together with specialisation requires an ever greater capacity for acquiring data and external knowledge. From this arises the need to organise education that uses modules which have a direct reference to the solution of problems. This will decide the sequence of modules, not authority in the name of discipline.

Specialisations and all the interdependencies are constantly brought under discussion. It might be a good idea that every ten or twenty years diplomas should automatically be considered obsolete, then be reconfirmed only after a series of tests and checks. In this scenario the combination of work experience and training would become increasingly closer. Taking technical possibilities into account the report suggests some concrete means of dealing with the situation.

All of these problems are particularly important when it comes to lengthening the life cycle. We are talking of a great social plan aiming to open up every possibility of insertion through education and work for all, at least until 80 years of age. It’s about the psychic and physical health of everyone and the health of society as a whole.*

9. Globalisation and Management of Uncertainty

The 1970s opened a first act on the subjects of globalisation, vulnerability and the management of uncertainty. The new millennium began the second act in which the same subjects were faced, in a more or less in depth manner. At the time of the first report to the Club of Rome the members on the whole were in agreement in believing that, given the capacity for destruction that man had developed, along with that for creation, the level of vulnerability

* Orio Giarini and Mircea Malitza, The Double Helix of Learning and Work UNESCO-CEPES, Bucharest, 2003
was no longer established at city, state or national level, but at the planet level. During the Cold War period, the nuclear deterrent was pretty evident, but the majority of observers still thought that it was a case of a single exceptional phenomenon.

Subsequently the debate on the environment made it increasingly clear that in this area interdependence was inevitable and could lead to global vulnerability and risks, if one thinks about the consequences of a significant climate change.

Paradoxically, in recent years the reactions of the “no global” movements, which nevertheless act on a global level, have contributed to reinforcing the idea that we are all on the same boat. Sometimes we arrive at the reality of globalisation using hindsight, but we arrive at it in any case out of sheer necessity.

Faced with this prospect we are also confronted with two kinds of reality linked to human nature and its social organisation: the question of power and that of the legitimacy of institutions.

The current world continues to suffer from the disease of the hunger for power which often overcomes the essential survival instinct. Power, though necessary, should be at the service of human freedom (which cannot be total). Not the contrary. We still have a long apprenticeship period ahead. We still haven’t come out of the age of brutality, based on group, nation and even interpersonal relationships. Wars always break out like an explosion and a freedom from binding ties and from badly lived and badly managed frustrations. The rule of law is a key means of progressing in this field and of keeping destructive instincts in check. Men learn to get around the rule of law which is only partial, and only a hint of which is apparent, above all at the international level, when it comes to limiting damages. The race is already underway between the capacity to harm and destroy and that of avoiding any kind of holocaust, in order, one day, to succeed in building a truly civilised global human society.

Of course, it is also a question of a struggle with the human character and its inclinations. It is necessary to warn against every idea, even those put forward by the most honest and well-wishing intellectuals, subjecting all of them to constant scrutiny. Too often, even good ideas, by becoming ideologies no longer help to solve problems, but rather become weapons for obtaining power for its own sake. Here is a job for the politicians of the future.

10. From the Industrial Revolution to the Service Economy

The question of legitimacy is connected to the problem of power and its effects on the fair running of society. To what extent are economic institutions considered legitimate? In the atmosphere of the passionate debate that followed the first report to the Club of Rome, several violent reactions demonstrated the fear that the legitimacy of the industrial system had been brought into question. In my opinion this shows the need to check the aims and means of economic activity using an economic discipline or “science” capable of being credible. It goes from the “civilised” development of society, which becomes increasingly more difficult, to subjecting to dictatorship, as the last means of social control. The contemporary economic world needs stability, consensus and participation.
Certainly it is difficult; but we are dealing with an essential passage, and the widespread growing level of training makes all this even more necessary. Of course so called negative economic activities exist, such as the sale of drugs, corruption, theft and fraud in their various forms: an economic system founded on those bases, and considered “realistic”, would, in the end, produce only injustice and poverty for the majority of the population.

Winning the battle for economic and social legitimacy means contributing, over time, to wealth and wellbeing in all their forms.

This is why I tried to put forward the idea that a better economic legitimacy could be based on awareness of the passage from the Industrial Revolution to the Service Economy. It was my way of “being Club of Rome”.

11. “One always ends up talking about God”

One of the effects of the Club of Rome’s initial success was that debates and confrontations were sparked off at every level and in every country. Annual assemblies and conventions followed one after the other from Tokyo to Algiers, from Kuala Lumpur to Madrid, Salisburg, Montevideo, Paris and many other cities. These were almost always attended by ministers and statesmen, even those at the highest levels.

Some years later Karl Schwab gave a fresh impetus to the World Economic Forum which had taken up the Club of Rome’s first experiences, widening and improving them, concentrating on the economic questions being discussed by world institutions. The great political and economic leaders needed a private, non institutionalised place where they could compare their ideas and discuss the great questions of the moment. I was invited to Davos three times to suggest discussions on insurance, and in particular on the management of the new vulnerability. My success, however, was very modest: neither the economic world nor the insurers (of whom only a few came to Davos, dispersedly) were ready to consider the strategic importance of insurance and the institutes managing risks in the modern world. Despite this, for twenty eight years at the Geneva Association, I committed myself to demonstrating it. Now we’ve got there, probably. Change is underway, and with it of course the need for new points of reference.

Many other initiatives were born after the shock from the Club of Rome. At Geneva, for example, for years Jacques Freymond, Director of the Graduate Institute of International Studies – and a member of the Club of Rome – coordinated a discussion group, in which Hugo Thiemann, Director of Battelle, had delegated me to participate, on the impact of technology on society. In that circle, a small group of scientists supported by the Club presented a study project on the importance and significance of possible climate changes.

This occurred thirty years ago and no one, at that time, had any idea of a possible warming of the planet or of the role of the greenhouse effect.

M. Kaplan, the Director of Pugwash, also took part in these meetings. He led an initiative within the circle, together with a group of scientists, to study in depth the aspects of their social responsibility. During this period I got to know Maurice Goldsmith very well.
in London. He was the guiding force behind the Science Policy Foundation that had the same objectives. With Walter Stahel and the help of Charles Enz, professor of physics at the University of Geneva, we organised the European section of this foundation in my offices.

Lew Kowarski was one of the most assiduous participants at Jacques Freymond’s meetings. He was a specialist in the nuclear heavy water industry that had been developed after the war by the Canadians. During the world conflict Lew Kowarski had gotten the available heavy water out of Norway before the German occupation. A fairly successful film was even made about the event. I had gotten into the habit of driving home with him after the meetings, once Francois Perrin came too. Lew Kowarski was very open to every kind of discussion. He thought it important and legitimate to study and check the Club of Rome’s hypotheses. Once, during a dinner he surprised me right in the middle of a discussion with a philosophical sentence. “You know, at a certain point one always end up talking about God”.

12. Evaluating the Reserves in order to Measure the Wealth of Nations

There is a report to the Club of Rome, dated 1986, produced by Elisabeth Mann Borgese, daughter of Thomas Mann, the great German writer, which embraced my suggestion that the notion of economic value should be reconsidered. This report concerned “The Future of the Oceans”, a subject to which Elisabeth had devoted several decades.

Her adventure in this field had begun in the early sixties together with Arvid Pardo, Maltese Ambassador to the United Nations and co-founder of IOI (International Ocean Institute). They both fought to have all those ocean surfaces, not belonging to a sovereign State, recognised as the Common Heritage of Mankind, and managed as such. All said and done we are talking about more than half of the globe. Around forty years ago the United Nations Assembly approved a law to this effect, but the battle to have it ratified ended just a few years ago. In this area of activity, or rather this mission, the IOI and Elisabeth Mann, who taught at the University of Halifax in Canada till her death, set up training seminars, pretty much around the whole world, for the management of marine resources and coastal areas, essentially in favour of the developing countries. The majority of the world’s population lives along the ocean coastal areas which are the most affected by questions of vulnerability, risk and pollution.

The problem is that when “the economic value of the oceans” is taken into consideration it is difficult to calculate. It is possible to quantify the value of maritime traffic, the resources extracted from the sea and from coastal areas, the costs of operations needed due to pollution, and then add up the figures. This first step proves unsatisfactory because some of these costs represent an increase of wealth, others a decrease (destruction and accidents). And what about the potential of the oceans and their role in regulating the planet’s weather and atmosphere?

On these points Elisabeth Mann, in that book, and in others that she wrote, the last being in 2000, never stopped making use of proposals contained in my first two reports to the Club of Rome.*

Essentially we are speaking of a general economic policy capable of estimating the value of stock and not only of added value (which is the measure of a flow), still used today as the basis for calculating the wealth of nations. This means that GDP does not calculate destructions but only reconstruction. It is a little absurd.

13. Evaluating the Stock and not just the Flows

This language may seem obscure to those not employed in this work but in effect it is very simple. Let us think of a bathtub full of water (or, by analogy, of heritage made up of money, houses or land, or of all of it together): we are speaking of a reserve, or rather of a stock. Now let us consider two taps, one supplying hot water and the other cold water. The latter represents all the products and resources made available by nature without man’s contribution such as the air that we breathe. The hot water tap represents the flow of resources realised with the intervention of man, rendered extremely efficient by the Industrial Revolution.

The notion of value in economic analysis, born on the theoretical plane some decades after the classical Industrial Revolution, effectively makes an estimate of and assigns a monetary value to the flow of hot water, always supposing that this flow is completely positive and is added to the pre-existing reserve. Unbeknownst to some experts, the notion of wealth in political economics is hence linked to a measurement of the flow and not, as the term “wealth” might suggest, to a measurement of the stock (i.e. of the effective result).

Let us not forget that at the level of business economics, at the end of the year there is usually a situation in which there are reserves, stock or available assets. It goes without saying!

When it comes to the definition of the wealth of nations it is not so.

So long as one was living in the classical Industrial Revolution period, rightly motivated by the need to produce more without taking into account the various side effects, this estimate of economic reality could be admitted and be very useful. Instead, when it comes to qualified public opinion the increasingly accepted notion of “sustainable” development breaches the meaning of a valuation made on the basis of stock, even of what has not entered into the formal production system and that is set by a market price that always favours the short term.

We also do well to understand that the notion of value added, considered classical in economics, has the undeniable advantage of being quantifiable in a specific manner. However there are moments when more imprecise measuring can become more efficacious, and downright necessary, in order to stimulate the wealth of nations in the contemporary context. With time it is probable that, though preserving the current respect for value added, it will be inserted, as a sub-system, into a larger framework, measured by indicators that, to return to our bathtub, will give a value to the cold water tap and to the quantity and quality of the water in the tub. We should not forget that the value added is not net but gross: it includes the cost of repairs or rebuilding that is always added to the quantitative measurement of wealth, even when an asset or estate that has been damaged is repaired or rebuilt, without being properly recorded in the economic statistics.
You destroy a city: the expenditure on reconstruction will give a statistically fabulous impetus to value added. It might be useful to think also in terms of “value deducted”, something that exists in the “micro-economic” calculations of amortizations without everything being transposed into the accounting of wealth of nations.

14. Building an “Economics of Common Heritage”

This whole debate on the “bathtub” seemed very abstract twenty years ago. But this is precisely the direction being taken, not only when sustainable development is spoken of (to protect resources and stock even before being able to quantify them clearly on the basis of a price system), but also on the basis of several United Nations reports. Some define the development and wealth of the various nations taking into account consumer power at the local level (how much bread can I buy for a dollar in Switzerland, and in Burkina Faso?). Still more, some reports introduce other indicators besides national income, such as state of health (which is a measurement of a person’s stock) or the level of education or that of poverty in relation to available resources, monetised or not.

This then is a long explanation to contribute to the difficult task of building an Economics of Common Heritage on which twenty years ago I presented a report together with another collaborator, Max Borlin, at a convention in Halifax, Canada, organised by the ICOD (International Center for Ocean Development).

Today, more than ever before, the vulnerability of coastal areas and environmental questions involving the oceans represent one of the important challenges of our times. A thank you and a dear remembrance are owed to Elisabeth Mann.

15. Musil and “The Man Without Qualities”

We come now to the cultural aspect of these reflections. Even economics has its roots in the culture of the society. A certain philosophy has been at the basis of every work in economics, from Adam Smith to John Stuart Mill, to our day. The evolution of Economics, whether in theory or in practice, is inseparable from cultural evolution. It is not by chance therefore that the members of the Club of Rome have always leaned strongly towards cultural questions. Nor is it by chance that Federico Mayor, previously Director General of UNESCO for many years, has been a very active member of the Club of Rome.

I have always thought strong signs of change are to be found in literature and my reference point has been Robert Musil, an early 20th century Austrian writer, whose ashes were scattered on the Salève, the last stretch of the Jura chain that marks the city of Geneva. Maybe I was struck by the fact that the writer had passed the last four or five years of his life a few hundred metres from the very office where I worked for twenty eight years and where I had also written the greater part of this book.

Musil represents the culture of “Mitteleurope”, of central Europe, to which Trieste Italians like me are particularly sensitive. He is best known for having written a book entitled
The Man Without Qualities. This translation of the title constitutes a betrayal. The German term is “Eigenschaften”, for which the term “qualities” is an incongruency. It would be better to use the word “Properties” in the chemical meaning of the term. It describes the state of a man who, in a world dominated by the scientific and deterministic view of things, refuses, as a person to be limited to one specialty, to be tied exclusively to one label.

The drama is even more powerful when one knows that Musil had a scientific education, and that in his time education in the humanities and in the sciences were completely separate. From this derives a man “without qualities”, who feels far from this world after the First World War – when even political theories become “scientific” and which are on their way towards one of the greatest disasters in History.

The book begins in a paradoxical manner, as it is only right that it should. Ulrich, the protagonist of the long novel is tasked with setting up a “Secretariat of the soul and of certainty”.

16. The Balance Sheet of the Secretariat of the Soul and of Certainty

August 1913. It was important to some German patriots to celebrate the anniversary of William II. To underline the fact that Austria had not succumbed to the charm of Prussia and Germany, they wished to prepare great celebrations for Franz Josef who, in 1918 would have celebrated 70 years of his reign: an impossible event given that when Musil wrote his book it was already known that the emperor and his empire no longer existed.

So why then evoke today the balance sheets of a secretariat and its activities which, as Musil’s novel takes shape, end up disappearing in the reader’s hands like sand that runs through the fingers and is scattered? Because paradoxically, this secretariat that in the end was no more than a plan, today, almost ninety years later can boast a positive balance sheet on which my thesis of a positive balance sheet is based.

The recognition of this seventieth anniversary of the reign of Franz Josef was meant to have taken place precisely on the basis of the idea that it was possible to overcome the cultural barriers which at that time (and in part still today) divided what Musil called the two half-truths. On the one side is a world founded on scientific ambition to arrive at some certainties through physics and mathematics; it is the world of science, understood as the realisation of the 19th century utopia that aimed at assuring society of a future made up of certain, definitive and absolute knowledge. On the other side, Ulrich is condemned to impotence because human reality and its becoming are made up of more or less irrational deductions that are not ascribable to Cartesian type definitive certainties, and which challenge the mechanistic and deterministic forecast towards the inevitable.

Is Musil, therefore, as some have very superficially suggested, the expression of a form of European decadence that leaves no more than a half part of truth to deterministic science? Absolutely not. Musil opens up the path to a new culture where science is no longer only deterministic, but presupposes a dialogue with indeterminism rooted in the soul, in human nature. And on this path he represents the beginning of the possibility of rebirth.
17. Two “half-truths”

It must not be forgotten that Musil alluded to “two half-truths” because he knew them both very well. He had written a thesis on Mach, he was an engineer and had a mathematician’s ambitions. At the same time Ulrich himself, in the novel, remembers every so often that mathematics is the field in which he tries to make concrete his aspirations towards precision. From his previous book *Young Torless* it can be seen that Musil is very attracted by the irrational and impulsive aspects of human existence. Nevertheless he does not allow himself to be taken in by stereotypes or by the Viennese atmosphere of the age. The judgement expressed by Musil on Vienna often derives from the idea that it was a decadent provincial world, incapable of planning its own survival in contemporary reality. The place where a more solid European culture was to be found at the beginning of the century was Berlin. Like Karl Kraus, Musil is often harsh in his criticism of the Vienna of the time. *The Man Without Qualities* begins with an account of what was strange in the kingdom of “KAKANIA” (Kakanie = Kaiser und Konig, Emperor and King). A world which no longer believes enough in itself to fight and to propose the synthesis “of the soul and precision”. Ulrich will remain alone and abandoned. The whole of Europe will fall into ruin in its wild attempt to transform a half-truth into a total and all-absorbing truth.

As the novel progresses one realises that what Musil is trying to free is the New Man, the Man who will arise in the crisis situation in which Europe finds itself: Europe as an extrapolation of the Viennese world of the Austro-Hungarian Empire of 1913, on which few hopes could any longer rest. There was not enough breath yet to give rise to a new culture, a new model, capable of dealing with uncertainty rather than being subjugated to it. Another proof of Musil’s positive and optimistic will comes from a fierce criticism of Oswald Spengler and his thesis on the crisis of Western Civilisation. For Musil this crisis was not inevitable, it was not registered among the inescapable “scientific” facts. We must learn that we are not an absolute truth, that man is not complete, that man is a project and that a civilisation cannot give itself or create for itself a future if it separates, in a schizophrenic way, the aspiration to precision of the scientific type from human cultural ambition in the broad sense. This would create an irreparable split into which it would escape and collapse.

Why then should this secretariat have been a success? If we look at what the human sciences, particularly economics, have tried to do in our days, we don’t get the impression that it was a success. Still today my fellow economists aspire to be taken as seriously on the scientific plane as a physicist or a biologist. They were almost convinced of it several years ago when a Nobel Prize began to be awarded for economics. The ambition of this discipline has been, until very recently, to seek to supply the social economic analysis with a presentation as sure and accurate as the accuracy of the natural sciences was believed to be. The great innovation of the beginning of the 20th century, immediately after Musil’s time, is the overturning of positions held in the area of natural sciences, and in particular, physics. Indeterminism and uncertainty have occupied increasingly greater space in the fortress of philosophy of science, whether we are speaking about Karl Popper – another “old Austrian” – or of Ilya Prigogine. What are they concerned about in fact if not about approving the fact that the secretariat
Itinerary to the Third Age

suggested by Musil for joining the two half-truths can find a point of union? Here is the new world, culturally, socially and psychologically capable of dealing with uncertainty, that gives meaning to every project while preventing it from becoming totalitarian. It is, therefore, about a battle for greater freedom and greater awareness and responsibility in freedom. This all began when Einstein overcame the world of Newtonian reality, though reluctantly and even though he spent the last years of his life attempting to prove that physics could once again be built on some certainties fixed and definitive in time and space. “God doesn’t play dice” he said.

18. The Value of Uncertainty

So what has happened in the realms of scientific thought? The notion of uncertainty has progressively replaced that of certainty. By now modern science, for most scientists, is not a structure where, once and for all, a certain definition of reality is established and remains valid forever, in time and space. Science does not consist of adding bricks a little at a time to a structure where every element represents an eternally valid certainty. Every time science produces a new brick, a new building material, this material means that the whole building system in question has to be reviewed. It is a dynamic vision that makes itself felt, not a vision in which an eternal, universal and immutable, in time and space, truth is defined. Truth is never found, only a greater truth. Every ancient “Truth” is redefined and modified into new “truths”.

The very history of evolution seems ever less like a series of balance situations, and increasingly like a sequence of non-balance situations. It is the identification of an “imbalance” that permits the indication of a purpose, and also the highlighting of the ramifications where numerous possibilities for development always exist. The definition of “balance” sanctions a purpose, often implicitly chosen, that can easily prove to be an “imbalance” if circumstances of observation and perception change. Some modern mathematics books can be cited, for example, such as Kline’s, which highlight how for a given problem tenable logical and mathematical possibilities can arrive at different solutions, all equally valid. What is learnt is that we cannot use ideas about natural science from the deterministic period of last century to justify deterministic views, or views in which every future can only consist of the inevitable development of an evolution with only one way out, considered “scientific”.

Evolution can take several directions: they appear determined only a posteriori while everything that will happen in the future is uncertain. Fortunately. In other words, paradoxically it is by accepting the notion of uncertainty in the natural sciences that the link forming a union, a new alliance between the natural sciences and the so called exact ones is reforged. The latter, discovering that they are only exact for a limited period in time and space differ from the human sciences only in the degree of uncertainty. There is an underlying cultural wave that can be found in hundreds of publications, and that justifies the idea that the secretariat of precision and of the soul created by Musil in his novel through Ulrich has effectively accomplished its task almost two centuries later. Despite having begun with an idea that was never made concrete from the organisational aspect, one can speak of a positive balance sheet. The two half-truths are no longer schizophrenically separate. We
are in a post Cartesian reality, ideas are no longer eternally distinct. If they remain always distinct they often become irreconcilable. There is an ever growing consensus on the fact that between one field of human knowledge and another there are grey areas, overlapping areas. Between poetry and literature, economics, political sciences, chemistry and physics, there are no irreconcilable splits. The poet’s inspiration is close to the physicist’s intuition. The custom of cutting reality into slices was, after all, simply an easy tool of convenience to help promote research in a certain number of sectors, until the detail was integrated into the whole. This old method of thought is what caused the European disasters last century. It was the exclusive State-Nation and the lack of understanding of political federalism, condemned because “confused” and because it admitted, and even stimulated a division of sovereignty.

It will take a little time for culture to be courageous and mature enough to fully welcome these ideas: to accept uncertainties without turning to drugs, physical, intellectual or ideological, hoping in this way to eliminate life’s challenges and pluralism, both in day to day living and in the historical dimension.

Let us, therefore, avoid building new medieval castles with the false hope that by hiding behind these ramparts we can enjoy greater security. It is precisely this kind of attitude that will allow the psychoanalysts to freely state that we are preparing our own downfall in the reality on the move in the contemporary world. Uncertainty forms part of the order of things. It is through uncertainty that a real possibility for progress exists, and with the risks taken in overcoming every kind of frontier, our best survival and development are made possible. It is on this uncertainty that the future of Europe and the World hinges.

Now it can be better understood why my report to the Club of Rome – an economic analysis closely linked to some cultural fundamentals – after the one on the Limits to Growth had as its objective the Limits to Certainty.

I pictured the following dialogue as an “Intermezzo.”
Dialogue on the Founding of a Secretariat on Uncertainty

“Did you say Ulrich, Ulrich Tuzzi?”

Having left the office I took about a quarter of an hour to get to the Grangettes clinic at Chêne-Bougeries, a district of Geneva. Near the Clinic car parking lot, to the west of the building, I found an old two storied house, surrounded by trees among which perhaps had survived four pines, already old at that time, and two birches described by Robert Musil in notes recounting the last years of his life. Unless, of course, those had been sacrificed to make way for the car parking lot. I was just about to check whether the half-moon shaped pool was still there, when I became aware of the presence of a friend, a research Fellow from CERN (European Centre for Nuclear Research). He was a physicist and was accompanied by a person of about forty, a man with a decisive air, a high forehead and black hair brushed straight back. Both of them seemed to be looking for something in the area around the old house.

A handshake and my friend performed the introductions: “One of my colleagues from CERN, Ulrich Tuzzi”.

He then explained that they had come to see if it would be possible to rent the ground floor of the house with the veranda so as to set up a general secretariat of certainty there.

“You see,” Ulrich Tuzzi explained to me, “a few years before the outbreak of the First World War which was to put an end to the Austro-Hungarian Empire (I’m of Austrian origin), my grandfather dreamed of creating a General Secretariat of certainty and the soul.”

“I seem to remember reading somewhere…”

“…but he didn’t succeed. He wanted to reconcile culture and the European scientific tradition, which from Descartes, through Newton to our time has never ceased widening the gap between the soul and the body, between knowledge resulting from the natural sciences, and – something more difficult to define – that engendered by artistic perception, between certainty and uncertainty. He often used to say that in his universe, until then, every truth appeared to be divided into two half-truths.”

“No! You who work in a highly prestigious centre of fundamental research are not going to tell me that the discoveries are only half-truths.”

“In a certain sense, yes. Some things were not so clear in my grandfather’s time – a time dominated by positivism and by a great number of absolute and universal cognitive elements.
Dialogue on the Founding of a Secretariat on Uncertainty

As Popper said, science progresses, thanks to a process of falsification. It studies Newton’s laws until it realizes that under certain conditions these laws are partially false. Up until the time when Einstein arrived on the scene and revealed that they were not completely relevant. Then after Einstein came Heisenberg and then Prigogine. Research is a dynamic process and does not stop with the acquisition of eternally valid details. With every new synthesis, every new detail, the meaning of the component parts and the theory of reference change.”

“But a chair will always be a chair, a tree a tree, an atom an atom.”

“In a certain sense, and under certain conditions, yes. Heisenberg’s uncertainty principle makes us recognize that at the level of the infinitely small, the equivalent of a chair can, at a determined point in time, appear as something absolutely different.”

“Yet, it is true that technology becomes increasingly more efficacious and that I’m able to distinguish – in a manner of speaking – ever more clearly the infinitely small.”

“There comes a time when the simple act of observing the infinitely small changes it because the energy released by the observation interacts with the object observed. A little more progress is made, thanks to some mathematical models and formulae, but for the moment the situation is increasingly complex and the numerous hypotheses are often contradictory.”

“My dear Mr. Tuzzi, if that is the case, are you perhaps telling me there is no longer any difference between human and social sciences (in which we ourselves are immersed) and natural sciences, subject as they are by definition to clear and objective observation?”

“This designation has its limits. The exact sciences and social sciences are ever more frequently found in the same situation: They both deal with different degrees of uncertainty. But thanks to this we have a possibility of filling the hole that obfuscated my grandfather’s view. From this it is clear that it is now possible that the creation of a centre for reflection on uncertainty would lead to something of which the general secretariat of certainty and the soul would have been incapable at that time when it was thought that these two poles must be immediately separated. This is the reason the Secretariat never came about and my grandfather lived hoping for this infinite romance, split by the contradictions between the nature of man and that of a certain positivist science, in the pursuit of an impossible synthesis. Today, however, the word “End” can be placed on the romance, thanks to a new age that is open to research and knowledge.”

“Are you telling me now that your grandfather’s life, or rather his romance, comes to an end precisely because it can continue?”

“There’s no paradox. Concerning this, Musil wrote that ‘men of this type certainly exist today, but there are not many of them, and for this reason it is difficult to assemble what is dispersed’. Currently a new culture is developing and spreading around the world, a culture in which it becomes increasingly less common to find isolated elements. A culture in which a New Alliance is forming, and as the Nobel recipient Prigogine states, it is a culture of a process of integration and construction.”
“As a matter of fact, it seems rather problematical to me that all this springs from uncertainty, if the little certainty that remains in the world – some scientific certainties – is hidden beneath our feet.”

“On the contrary, all the dogmas and pseudo-religions that are often transformed into political ideologies have totally exploited the concept of an exact, certain and inevitable science. From it they have deduced a great many legitimisations with no foundation. In the Middle Ages wars and massacres were justified in the name of God. Still more horrible, barbarous massacres perpetrated in the previous century in the name of society’s scientific laws. Never before had chaos been so efficiently orchestrated.”

“But how is it possible to live and give life while proclaiming that uncertainty has a positive value?”

“It’s not a matter of spreading uncertainty. The problem is that of recognizing that life is uncertain. Sooner or later humanity must decide to create a truly civilised world, built by people of proven maturity. This means recognising reality. It is an act of deep cultural awareness, essential if we want to avoid the manipulations of those who offer us definitive certainties. It is a matter of learning to live better, of accepting one’s own responsibility, of facing uncertainty and accepting it. It will be the best of psychotherapies.”

“I see. It’s not for nothing that you’re Viennese.”

“Yes, but a Viennese who accepts reality, and who demands that there should be a speedy investigation into what in Freud is false.”

“I must admit, my dear Mr. Tuzzi, that I’m a little, well actually, very puzzled. I understand that you feel great affection for your grandfather. But couldn’t you perhaps say that your attitude is due, in large part, to a world in crisis, to a world in a state of decomposition? If I remember correctly, your grandfather lived in Vienna mostly during the years immediately before the fall of the Austro-Hungarian Empire. Could not his desire to found the general secretariat of uncertainty and the soul – I hope you will not hold it against me if I speak frankly – have perhaps come from a desire to flee reality, of taking part in the political breakup of his country and also, perhaps, of being to some extent responsible for it?”

“Clearly, the Austro-Hungarian Empire had fallen into a serious crisis and was incapable of facing the historical developments of that time, and particularly the rise of nationalisms.”

“A period that lasted several decades which appears to have coincided with the great development of the Industrial Revolution.”

“Exactly. Cartesian and Newtonian logic corresponded to that of industrial specialisation, of material manufacturing productivity, of people specialisation and consequently that of nationalism and of the classes. The drama occurred when the line of demarcation between dialectic and conflict was broken and the breach became beyond repair. The incompatibility between these two poles is once again the one that exists between certainty and the soul. The Cartesian method of subdividing world and life reveals an approach that is intrinsically incapable of stimulating the differences in a positive way. Here in Switzerland it is accepted
that the State guarantees and protects the individuality and sovereignty of the Cantons. This federalist system combines autonomy and supra-nationality, and reinforces them. It is the path, perhaps, that Europe is taking, in order to fully make the most of its peoples and their diversity."

“But an independent State can at least defend its freedom.”

“It depends on its strength. Independence of unequal countries puts the weak at the mercy of the stronger. Only the strongest State can consider itself truly independent. Currently there are more than 150 ‘independent’ States in the world. They all represent only half-truths while international imbalances represent the other half.”

“So, for you, the fall of the Hapsburg Empire was a historic disaster. Don’t you think this shows a little nostalgia on your part? You aren’t by any chance creating your Centre to commemorate the anniversary of Franz Josef’s birth?”

“I have to admit you are right on one point. On the one hand the many reasons for which the old Empire of the Hapsburgs had to disappear are: its inability to present a valid plan for modern federalism, its indecisive management of the destructive effects of the Industrial Revolution, the clumsy renewal of the social structures. However, on the other hand, it is necessary to underline the positive aspects of the co-existence of different peoples, not forgetting that the disintegration of the empire also opened the way to Nazi-ism. The essential point consists in finding in this new culture that is spreading throughout the world, a new possibility of overcoming the current situation, of progressing, of recreating an image of the future and of opportunities that the old cultures and ideologies (which are no longer those of the Austro-Hungarian Empire, but rather those that destroyed it) have increasingly greater difficulty in promoting.”

“Your Centre of uncertainty certainly isn’t lacking global ambitions. I’m afraid however that you’re looking for a humanity that simply doesn’t exist.”

“Of course, in all of this there is a great challenge to be met. If no one takes it on it will be difficult for our planet to survive adequately, prey as it is to the vulnerability of every kind and provenance. But it’s true it’s a question of human quality, of good sense and intelligence.”

“Everything depends on what you mean by quality. My grandfather used to say that he had none. He refused to see himself confined to a restricted vision of life. A one-dimensional life with a single truth that quickly resembles a form of blindness. To have many truths and subject them to checks is much better than having only one truth. What is necessary is to want it and to want to improve it.”

“Perhaps it’s true. I too tend to define myself as a man without qualities.”

“If you want to help me with the Centre of uncertainty, you are welcome.”

Night had fallen and someone had lit the lights in the veranda of the house on chemin des Grangettes (nr. 29 to be exact).
Chapter 6

Towards the Service Economy

In the rococo shelter of Leopoldskron Castle in Salzburg in Austria, I heard somebody talk about the post-industrial society and economy. In that summer of 1959, Daniel Bell gave his first conference on the subject during an American studies seminar, part of a series that has continued into our time.

Being a sociologist, he did not venture more specifically into economic arguments but concentrated on the fact that the majority of the population by that time were working in the service field. This observation led him to think that the “working classes” were less than what the Marxist theories had described and taken as their reference point. As a result, factory workers could no longer constitute, if they ever had, the basis for the great social revolution.

I noted these observations while thinking that in human history any political structure ran the risk of deteriorating, thus giving rise to forms of oppression, whatever its original basic ideology. The observation concerning the relative decline in factory manufacturing work was important – I will come back to it more and more often later, especially after describing my experience in industry and at the Battelle Institute.

I published my first book in 1968 on *Europe and Space*, which was followed a few years later by a contribution to a second book on *Europe and the Oceans*. From 1971, I began to hold a course on Politics of Science and Technology and European Integration at the University Institute of European Studies in Geneva. It was the beginning of a university teaching career that lasted twenty eight years (from 1971 till 1999).

In 1985, I was duly appointed “Prof” at last. For over ten years I had given lessons without pay, for two or three hours a week. One had to do something for Europe plus learn to put one’s ideas and experiences in order.

Those courses taught me a great deal. Actually I’m not like those teachers who first learn to specialise in a subject from books and then pour their knowledge into their students. I am fundamentally a researcher: first I understand from practical experience where the most advanced edge of a discipline is to be found and then I investigate beyond that edge, while at the same time making use of books. My references have been experiences from industry, technological research and finally my experience of institutions relating to risk management and insurance.

* “L’Europe et l’Espace”, Centre de Recherches Européennes, Lausanne, 1968
† “L’Europe et les Ressources de la Mer” with prH. Schwamm and H. Loubergé. edition Georgi, St. Saphorin (Switzerland), 1977
‡ 15 From 2006 I again held courses in English at the IUIES (International University Institute for European Studies) at the Gorizia campus of Trieste University.
Towards the Service Economy

Of course, the main task of teaching at the university level is to frame empirical data, the facts, in an orderly and coherent presentation. This in turn allows us to give a more thorough meaning or explanation to those same facts. It is a wide ranging task that requires the best balance between the so-called “practical” and what is known as the “university” synthesis. In any case it is very enjoyable. I therefore owe a debt of thanks to my students whom, for many years I have exposed to often unexpected experiences and to whom I have introduced, in research, though without them requesting it, new elements for understanding and judging contemporary economic reality. A battle which I have always considered parallel to the construction of a new Europe.

1. Dialogue with the Economists

The University Institute of European Studies was founded in 1963 by Denis de Rougemont, Director of the European Centre for Culture in Geneva, in order to arrange for a base for education in the Centre’s programmes and also to consolidate its financial structure. In 1975 my course became an “Introduction to the Economics of Risk and Uncertainty” and from 1983 it was titled “The Foundations of the Service Economy – Europe’s problems and prospects”.

In this research-teaching work of course an important number of basic works had to be included. I always read Adam Smith, Marx, John Stuart Mill, Marshall, Schumpeter, Hicks and others, only after having raised, in various ways, numerous questions concerning them: references, observations, suggestions, recommendations, citations. Rather than reading them, I entered into dialogue with them. A necessary dialogue if one has to understand the motivations, experiences and historical references of these authors. A method that perhaps does not meet the normal academic requirements, but which, according to me, is useful, if one is to get to know how to obtain the greatest advantage from a daily observation of the “real” economy.

I must also confess that many of my ideas came to me while I was in search of a synthesis as I was talking in front of my students. It was very interesting to reflect, after a lesson, on what I had said during the course. Centimetre after centimetre, I was able to advance a few metres every year, or at least have increasingly better structured ideas. After twisting my ideas in every direction I leave it to others to test if they are false or useless. It is pleasing to proceed even when one discovers that an idea or a hypothesis is wrong. These days it makes one shudder when, for example in the physics field, it appears that certain particles such as Higgs, considered fundamental by current dominant theories on the formation of the universe, don’t actually exist in reality. But the essential thing is to seek.

Other opportunities to teach and to learn were given to me by the Agnelli Foundation in Turin between 1970 and 1975 and by the IRI education Institute in Rome from 1976 till 1979, for a total of about seventy conferences/debates with an audience who were essentially public and private entrepreneurs. At the Agnelli Foundation I had a very special experience working with a group of psycho-sociologists recruited by Giorgio Demarchi, an old Trieste schoolmate. I was part of a group of experts (including Luigi Frey, a key man in Italy in labour economics, and Ettore Massacesi who was to become managing director of Alfa Romeo before it was taken over by FIAT).
Itinerary to the Third Age

Naturally, I presented my theme on technology and economic development and the psychologists, with questions but also with silences, pressed those present to be aware of the “group dynamic” and how this interfered with the understanding of the argument under discussion. One of them (a figure of authority appointed by the group) immediately agreed with me. Others protested, in order to assert their own area of independence. Still others spoke in order to obtain the maximum approval of the group members. It was interesting and informative to witness how the whole discussion, on a pretty concrete subject, was filtered through psychology, individual and social strategy. Apparently, rational language became what the “psychs” call “metalanguage”, through which transmitted signals or words become the indirect means of establishing one’s presence and role in the group.

One day, I asked everyone to close their eyes and list aloud what was there in the conference hall. Later, after they had opened their eyes a comparison was able to show that more than half of the objects in the hall had escaped the attention of each one. However, the objects noted depended more and more on the character of the specific work of each one. A furniture maker had noticed the kinds of chairs, tables or armchairs, while an amateur painter had especially observed the pictures on the walls. In a word, when it comes to the sea of information that surrounds us, each of us makes use of an “input selector”, a very personal selection system. The moral, if there is one, is to understand that we inevitably make choices from among the items of information that surround us. It would be impossible and absolutely intolerable to try to capture this completely, but we have to do our best to be aware of this process in order to improve the opportunities that we have to understand reality and the quality of our judgement, which can improve but cannot become either perfect or definitive.

In my “education-teaching” there is another essential element to be noted: the contribution. Sometimes subconscious, of some people who open doors in your mind, saying a sentence or a word that leaves imprints way beyond their basic meaning. One day, at the Battelle Institute, Emilio Fontela, then head of the economics department, speaking of service businesses told me: “It’s clear that services represent not only a specific economic sector, but they are very important in the industrial sector too.”

This observation was decisive for me and I spent years studying it in depth. It is one of the principal keys to the reading of contemporary economics. For Emilio Fontela it was about an empirical observation that had no particular effect on him. His main area of research involved simulation models for which the definition of service activity was rather vague. I thank you anyway, Emilio, for the inspiration.

In the following paragraphs I will describe a certain number of points that I consider important, indeed essential, for developing economic research and for reinforcing its capacity for acquiring new data relating to the great changes in society, and to the discoveries and innovations in science and technology.

I invite the reader, particularly if he/she is not an economist, not to be discouraged: at the risk of appearing superficial, I am convinced that every truly clear idea – especially in those disciplines called the social sciences – can be easily illustrated and expressed in very simple language.
One day at the Battelle Institute, Maurice Poull, while explaining the development process of new textile machines, told me, “Every machine and every process is based on a key principle: for example, men first learned to light a fire by rubbing two pieces of wood together. They then improved this principle creating different types of matches, and then, for the same use, they invented other implements that, in the presence of gas, produce a spark thus enabling the lighting of fire – in the kitchen or for a pipe – in a very effective way. The same thing happens with textile machines that produce threads and fabrics following processes and principles unchanged over millennia. The quality of the raw materials (cotton, wool) used has improved and, thanks to improvements in metals, that of the material and of the machines used is also better. These work more precisely and quickly, and do not break. On the other hand, historians date the beginning of the Industrial Revolution to the moment when looms and textile machines underwent important innovations. These consisted in the use of water heated in a tightly closed container (like today’s pressure cooker): The water, becoming hot and turning into steam increases in volume by about 1,700 times, producing in turn great pressure and hence energy that can be used to move some of the loom’s levers, in place of the force used by a human arm. In the case of the cooker this must be dispersed through a valve on the lid to avoid an explosion. Just like with the pressure cooker so it is with the loom; the metal must be well produced, solid and without flaws so as to avoid it breaking, or even worse, exploding. At the beginning of the Industrial Revolution it was not easy to produce containers capable of resisting strong pressure. As a result there were a number of accidents (which can happen even today), and the birth of a specific insurance sector (against the explosions of containers or tanks under pressure).”

Even without being engineers it is easy to follow the progress made in innovation and technology. The great development of the railways starting from the middle of the 19th century (almost a century after the Industrial Revolution), is linked to the same idea of heating water in a tank, placing it horizontally however, so that the pressure of the steam pushes the wheels of the train through the use of pistons. Thus was born the locomotive. It is thus easy to imagine how much work engineers put into research, development of materials and the possibilities for assembling them.

Maurice Poull went on: “On the one hand, therefore it was possible to use the mechanical energy (produced by water pressure) and on the other there was the invention of the so-called flying shuttle”. This is simply a spool around which the fabric thread is wound. It is pushed with a sharp blow from one side of the loom to the other, a blow struck by an arm or a kind of hammer activated by steam energy. Obviously the spool has to start from the correct direction, but to achieve this it is only necessary to make a guide or use a piece of wood or metal to stop it from going where it should not go.

It is soon imagined how with this system the speed of the machine, and hence of production, can be constantly improved. Productivity increases in the traditional sense of the term as used by economists.

Once this starting point concerning the improvement in a procedure that uses a known technology is clear one also understands that there can be constant improvements in the
kinds of machines, both physically and in terms of performance, in materials used in building machinery and in the textiles used.

Why then did our weaving machine become the symbol of the Industrial Revolution? Because the energy used allowed the fuelling of several machines at a time and from that derives the interest in bringing many machines together in one place. It was to be the birth of the “factory”, by now necessary for man to take the fullest advantage of the possibilities offered to him by this new phase in technological development. Previously, textile production had been linked to agricultural activity. Work on the farm was done by hand, on one or two machines, when there was time, bearing in mind the need for field work. What happened, starting from the second half of the 18th century, has been defined as a real technological and social Revolution. The peasant who worked in textiles became a labourer. He could no longer work at home. The working class was born.

Now let us take a step forward. Maurice Poull explained to me: “One can develop a system over the long term. There always comes the moment, however, in which the possible improvements become less – what economists call diminishing returns. One must therefore change both the logic and the system”. So, Poull tried to develop a spinning system aimed at improving the speed of producing textile threads consequently, based on a new principle. This involved using static energy (the kind that attracts dust to some furniture and surfaces) to place the fibres parallel and, after twisting, to create a textile thread. I have already mentioned that this principle, which had at first produced good results, was not a success. At that time another system gained advantage. This used centrifugal force (the same force that allows salad to be drained in a basket that spins fast and to squeeze laundry in a washing machine).

Here therefore we have two fundamental elements relating to technological development: improvement of existing principles and tools until they arrive at the point where they show a diminishing of returns which increasingly limits innovation efforts in relation to the results, plus the need to consider completely new principles and systems.

2. Prometheus Unbound

It was at this point in 1971 that a book on economic history written by David Landes in 1969 fell into my hands. It was called The Unbound Prometheus – Technological Change and Industrial Development in Western Europe from 1750 to the Present. I have never read a book on economics, the analysis of which corresponded so closely to my own experience of work and daily research. It opened my eyes to another essential point which strangely seems to me to be still widely underrated in economic analyses.

Until the second half of the 19th century every technological innovation was of the empirical kind, that is they were developed on the basis of practical experience, with no fundamental research involved. The steam engine was invented at a time when it was not yet known that water was composed of hydrogen and oxygen; one simply began to assess empirically the dimension of its transformation into steam following its being heated. The same goes for

coal, a fuel used for centuries, with no knowledge of its chemical structure. And so it was for many other materials.

In the 19th century the scientist (or the philosopher who studied “Nature”) was a very different being from the engineer (the latter even got his hands dirty). When Graham Bell was told this, thanks to his research the telephone could be produced, he became angry and took it as an affront. A true man of science – a scientist – is not to be confused with the common mortal who makes practical things.

The union between science and technology would come about gradually and stealthily, from the end of the 19th century. Complete integration would take place only during the Second World War – what was at stake was important and it was necessary to quickly abandon every cultural prejudice. Only after about 1930 did real professionalisation of research and development begin and the Battelle Institute was one of the first and principal points of reference.

3. Combatting Diminishing Returns

It should not be thought that the notion of diminishing returns is exclusively an economics-based one. It is at the heart of our lives, materially, physically and also psychologically.

Let us think first of going on foot and of racing. If we are champions, the fastest we can go is about 100 metres in 10 seconds. To run 200 meters takes more than twice 10 seconds. And so it goes on up till the moment at which, after some tens of kilometres on foot, we will no longer have the strength to move. It is possible to go even further, but increasingly less efficiently in terms of speed.

This phenomenon of diminishing returns can be overcome by getting a bicycle. This is very efficient for covering the first few kilometres, though increasingly less so, especially after 50 or 100 kilometres. And so we can take advantage of using a car and following the same logic we can try, in exceptional circumstances, to go to a place as far as China. For this distance however, a plane is preferable. And to go to the moon there is currently no option but space rockets.

Here then we have a first opening into the mechanism of diminishing returns and into the possibility of opposing them with new technologies and inventions. It is necessary, however, to draw attention to the fact that every new technology, every new invention, is increasingly more specialised. Going on foot allows me to jump over a small wall, to enter the water and learn to swim. Though having a car it is better to opt for a ship on water, or for a submarine for underwater. On the other hand, to go quickly to the bakery a kilometre away it is hardly appropriate to use the speed of an aeroplane. There is, therefore a fine balance between the most efficient use of the various means, from our body to aeroplanes, and the effects of diminishing returns. The analysis of productivity in economics (how to get more with less) depends on a thorough study of these phenomena, and it is not enough to know how many cars are produced in an hour in a factory.
This problem of returns occurs at the psychological level too: We might enjoy a film, but if we see it for the tenth time, we’ll enjoy it less than the first. Let us think of love, at the beginning declared to be forever but extinguished over time, unless there is an appropriate change in register and the aims of the couple. There is a difficult word to define all of this, entropy. This indicates the tendency of every system, including the starry universe, to be exhausted and to lose its vitality. Georgescu Roegen, an iconoclast economist, with an education in physics, wrote a book on this subject, compared to which even the ideas of the Club of Rome on the limits to economic growth seem very modest and inadequate. Entropy (or diminishing returns) occurs faster if we insist on sustaining an accelerated growth. In order to protect the Earth, said Georgescu Roegen, it is necessary to proceed slowly to avoid arriving at the final stage too soon.

Although Georgescu Roegen’s book contains many important elements worthy of consideration, and although he once wrote to me to compliment me on my ideas on the subject, I’ve always thought, and I still think, that if on the one hand entropy exists, just as diminishing returns exist, there is also a positive side of the coin. This is negentropy: it is real scientific discovery, it is the capacity at the individual level, to get back into action so as to seek new ways. Every extrapolation of what exists, including the human species, leads and can lead to the end of everything. What emerges every time, however, is the discovery of new worlds, of matter and of the capacity of society to organise itself. Uncertainty of the future fortunately destroys every idea of extrapolation of a finite world.

A finite world is one whose future we would know. Instead we seek it. We invent it. Of course there will be crises: one day there will be no more petroleum for cars, like there is today, and perhaps there will be ten billion and more people on the earth, and maybe there will be a nuclear incident caused by a war or by something else. Today, however, the infant mortality rate continues to fall almost all over the world; the majority of people have enough to eat and for the first time in history we can think of reducing hunger and injustice to a minimum. The first danger to be faced, much more than entropy, is that of the growth of vulnerability, of risks that man’s power is capable of producing catastrophes of planetary dimensions. The political, social, technological, cultural and scientific challenge lies before us. Let us rid ourselves of the deterministic and pseudo-scientific extrapolations of the 20th century. They have done enough harm. Let us also get rid of the deceptive certainties, let us use the margins and the possibilities offered by uncertainty, by risks, by life as it is. Let us leave to society the capacity for rebirth despite everything.

4. The Diminishing Returns of Technology

“It’s a matter of applying the idea of diminishing returns, in economic terms, to technology,” Henri Loubergé told me, in 1974, during a discussion in front of a blackboard at the Geneva Association. He was writing his degree thesis that would become a fundamental text of Insurance Economics. He was a collaborator of mine and I felt a little responsible for bringing him to this path. We were completing the first steps of a book written together, inspired by my first experiences, which was to be called Diminishing Returns to Technology."

* The publisher mistakenly insisted on the title “The Technological Disappointment” (it was more marketable). On the contrary, understanding diminishing returns is the key to advancing research, both applied and fundamental, in the right direction.
In February 1975 I took the first decisive step. I wrote an “Information Letter” to the Geneva Association, the series number of which I have never forgotten – 19. I actually wrote those ten pages in a day, with an emotion that I have never again felt. It was inspiration (or psychological self-exaltation, or diseased euphoria, I don’t know which): the outside world came to me in muted sounds and colours. In my heart – in my mind – there was a sense of fulfilment that I had never experienced, except once or twice when in love. And I was perfectly sober. After the text was finished this state of mind lasted an hour or two and then I returned to normal. It was the first time that I had produced a synthesis in ten pages of everything that I had known, read and written till that moment, and that seemed important to me. Thanks to the wave of momentary enthusiasm.

Concerning the content, this idea of diminishing returns of technology seemed absurd to most of those with whom I spoke about it, and especially to economists. To most of them science and technology constituted a kind of magic wand, a simple expression of human capability and intelligence, without nurturing the feeling of needing to know the conditions and limits of discoveries (science) and development (technology). The two were confused (and often still are) with the idea that they are always inevitably interdependent.

The problem is that discovery (which is not that of technological application) is, by definition, uncertain, because at the beginning it is never known if and how something new will be discovered (or not). Basically there is the fact, still widely underrated, that the great annual economic growth of 6% – a unique phenomenon in history – in the industrialised countries, from 1947 till 1973, was the visible and concrete result of the new alliance between science and technology. A unique event in history that took place at the end of the 19th century.

War served as a catalyst for it and from it flowed a tide of extraordinary applications in every sector. When, in 1973, a deep crack was produced in the rhythm of growth, that since then continues for western countries – when everything goes well – at an annual average of 2% an exceptional period came to an end, a period that had enjoyed the introduction of scientific discoveries in vast fields of technological application. The boom slowed down when diminishing returns intervened, and the production structure changed.

Confusing science with technology, some economists believed that it was enough to increase the budget to have results that were quickly usable. In 1973 and in subsequent years (the reader can check by leafing through the numbers of the Financial Times of the period), with the petrol crisis in mind science was expected to make it possible to extract petrol from the bituminous shale in Canada or shortly to have reliable and waste-free nuclear power plants to continue the production of energy. At the same time, during that period the enormous progress in telecommunications and computer technology were considered secondary. However, it was these that came to prevail: they were based on a mature and sufficiently developed science, while today many questions are still being asked concerning how long petrol reserves will last. What is new is the fact that this question is no longer being asked by the Club of Rome but by the petrol industry.

The book on the diminishing returns of Technology came out in English in 1978. It gave rise to discussions in a significant, but all in all a limited number of circles. In the French
and Italian editions, because of my inexperience, the publisher wished to impose his commercial view, maintaining that sales would be better if there were a more showy title on the cover. I tried in vain to object. It was a disaster. As a result of a misunderstanding concerning the meaning of “diminishing returns” the book in Italian was published under the title *La Delusione Tecnologica* (“Technological Disappointment”). In French it was still worse: “Technical Society Adrift”. The use of the original as a subtitle in no way improved the situation, all the more so as one had to be an economist to really understand it, and “normal” economists – with good reason – did not read books with such an unauthorised title as was imposed on me. The ways of the Lord, but also of the devil, are infinite.

### 5. The New Economic Concepts of Carl Madden

Carl Madden is another personality whose path briefly crossed mine and left profound traces on my mind in its search for an understanding of the world of contemporary economics.

I met him personally only once, during a lunch in Washington in the spring of 1978. I had read his 1976 study, carried out with the Joint Economic Committee for the Congress of the United States.* He inspired my report to the Club of Rome (Dialogue on Wealth and Welfare), published in 1980 (1981 in Italian†). I have never experienced a similar intellectual affinity with an American economist. I record some of his thoughts here.

“The idea on the basis of which growth is related to an increase in production per inhabitant is too simplistic. Logic and empirical evidence suggests a new concept. Scientific progress has been the great innovation of the last two centuries, yet economists have neglected the study of science’s effect. In the 20th century science itself underwent a revolution which brought back into discussion yesterday’s fundamental scientific hypotheses concerning space-temporal nature, human life and its origins, the nature of organisms, the structure of matter-energy configurations and that of the universe.

Economic evolution is a subject that does not lend itself at all to traditional type discussion. Classical economic science remains dominated by the ideas of the mechanistic type allied to the physics and mathematics of the 18th century. In it economic activity is described in terms of mechanical equilibrium of the forces, of “states of equilibrium”. The content of fundamental economic concepts has to be changed. The concepts of wealth, of profit, cost and productivity must be modified. It is not at all clear that our current concepts relating to fundamental economic contributions – capital, work, land and management – are any more perceptive than the concept the Greeks had of the fundamental elements – earth, air, fire and water”.

Already at that time Madden was stating that the essential in economic development would be increasingly based on the knowhow and will to take action, what today is called “human capital”, and it is a good sign.

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† Biblioteca della Est Mondadori, Edizioni Scientifiche e Tecniche, Milano, 1979
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I have already mentioned some research proposals for a wider economic analysis on changes and on ongoing progress, such as the distinction between stock and flow in the conception of economic value and the estimate of the uncertainties linked to basic research and on its effects on technology and its economic applications.

In the following paragraphs I will complete my list of research proposals – based on my experiences – which I believe to be reasonable and contemporaneously useful, sometimes even stimulating.

6. Economic Science and Industrial Revolution

The fact that “economics” (or economic science) is a consequence of the Industrial Revolution should not be undervalued. For Adam Smith – the founder of the first modern theory of economic activity – it was clear that the true productive value that leads to an increase in wealth is the one that derives from what we today call industrialisation, or the manner of industrial production. This observation, which today can appear banal, was not so at that time, when it was clear that agricultural production was at the basis of almost everything that could be done to nurture and maintain a population. And one was never allowed to forget it. For Adam Smith, the important thing was to draw attention to a change in production possibilities – thanks to the Industrial Revolution then in progress – that would become the key to every policy aimed at seriously increasing the wealth of nations. Agriculture itself would, in time, end up being widely industrialised.

Industrialisation went ahead step by step with a great development in trade and, as a consequence with a greatly increased use of money. Although it had been around for millennia, money covered less than 50% of the production and consumption of every society. We are dealing essentially with an agricultural industry that was self-producing and self-consuming. The power of the nobles who dominated this type of society was not built on money (which was scorned) but on the sword. Many books give us a distorted version on this subject because the customs of the present are projected on the past.

Adam Smith grasped the opportunity and the experience of the new Industrial Revolution, in which money was becoming increasingly the key element of economic and social organisation. At the centre of his analysis there was a very simple observation. A price was established by the will of someone to sell a product to someone else who wanted to buy it. This price became the reference point for defining the economic value of a piece of goods. It is to the exchange of an item of goods on the basis of a price that reference is made in economics when one speaks of “equilibrium”. Equilibrium between supply (the seller) and demand (the buyer).

In a traditional agricultural world in which transactions were limited it was difficult to see a general phenomenon and, in any event, neither Charlemagne nor any of those who came after him, and created empires, possessed a bank account. At most they had servants paid not with a salary but at best with the right to plunder like armies at war. It was left to peripheral groups – often Jews – to handle the task of dealing with money, an activity unworthy of a real lord. Go today and tell that to the various Rockefellers, Agnellis, Schneiders of our day.
The “scientific” claims of the 18th century adapted perfectly to the price equilibrium discussed by Adam Smith. This founder of “economics” had actually introduced the notion according to which this equilibrium was imposed by an “invisible hand”, i.e. it was the consequence of a kind of natural phenomenon. More recently much has been written about the “invisible hand” as if it were the banner of the free market. Free perhaps, but under the aegis of a “scientifically objective” phenomenon. Karl Marx only had to follow a large part of Adam Smith’s concepts to then simply add the idea that in the real market even the price depended on the relationships between the forces, themselves considered a social “scientific reality”, and at the end introduce the notion of class struggle.

Today, it is beginning to be increasingly understood: “science” ideology (essentially deterministic) dominated the entire variety of political ideas from the 18th till the 19th century. The worm stayed inside the fruit in every fruit for a long time.

Here then is a first point to study: to what extent is economic “science” as it exists today, strictly linked to the experience of an age during which the Industrial Revolution, in the strictest sense, was the most important and dominant phenomenon in economic development conducive to the wealth of nations? What consequences must be drawn if the contemporary economy is a Service Economy?

7. The Service Economy

In every introductory economics text and in current practice, economic activity is sub-divided into three sectors: the primary or agricultural, the secondary or manufacturing (industrial), the tertiary or service (a kind of dump where everything is put that cannot be put into the other two). The three sectors are also quoted in WTO (World Trade Organisation, ex GATT) negotiations and in national and international economic statistics.

In short it is a generalised and universally accepted convention that no longer corresponds to reality. Worse still it is increasingly false. It is once again the story of the sun that “rises”.

Actually in the golden period of the Industrial Revolution that lasted till almost 40 years ago this sub-division was justified by the fact that the absolute priority was industrialisation. On the one hand, agriculture’s relative economic weight has fallen steeply and in the most advanced countries represents much less than 10%, or even 5% of the total production of wealth. In particular, even where agriculture claims to be organic, its management is pretty industrialised.

On the other hand, the service sector is the one that has long been considered “secondary”. And even unnecessary. In the same spirit with which in his time Adam Smith was taken to task for not understanding that agriculture was the basis of everything. They will now tell you that it is essentially all about producing a car. Today, in fact, it is thought that industry is the foundation for everything.

Now, especially, but not only, in the developed countries, 80% of the people work in services, and that probably includes you who are reading these lines. Ask Jack Welsh, the Napoleon of American industry, who set up the most capitalised, richest industry in the
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world, General Electric: He knows well, as do today’s great “industrial” managers, that quantitatively and qualitatively every modern business depends first of all on its service activity.

Services no longer simply represent a sector (even if it is industrialised on a smaller scale); they are a FUNCTION that crosses all economic activities.

It is often said that services are nothing other than immaterial products.

Nonsense, as the English say: There is no such thing as a material product that to be conceived and used doesn’t require several services. Nor is there an activity belonging to the service area that does not use material tools. Whatever the “production” of which one speaks, in any sector, the material part represents, on average, at most 20-30%, while the rest are services.

The great start to this far-reaching change began around the 1930s, when research had begun to become a specific professional activity, for which important laboratories and allocations were needed. Research management introduced new elements into the production system. When one is about to take up a research project one must take account of the fact that every study has a limited probability of success that can range on average from 10% in certain branches of the chemical industry to less than one percent in some sectors in the pharmaceutical industry. It is a first element of uncertainty. The second derives from the fact that even important and innovative research destined to succeed, will require a long period, often a decade and more, to pass from the initial idea to its exploitation in the market.

So it is then that a service function such as research (that requires a lot of equipment) resembles, like the reflection in the mirror, the insurance business, which is based on the probability of something happening (in this case something negative, such as an accident or an illness) gives life to its business; insurance is a “traditional” service sector to which we devote the next chapter.

In the majority of cases service functions are predominant even within the chain of production, and deal mainly with maintenance (production checking and repairs) safety, logistics (arranging for the products necessary for the production line to arrive in time). Then there are the distribution and sales services. At the end of the utilisation cycle there is recycling or waste treatment. “To produce” means allowing 80% for managing all the service functions and it is essential that everything is well organised or contracted.

In classical economics texts there are long discussions on the notion of use. The “old” economists claimed that it was limited and reductive to base value on sale and purchase price only. This debate that has nothing to do with the notion of utilisation related to services ended up being abandoned.

In a way the economist John Stuart Mill ended the discussion on the value of use when he asserted that every material produced contains within itself the use that is made of it. Use, therefore, is included in the product as such and in its price. This principle can be accepted so long as we live a simple industrial experience, with simple products. The problem of the service economy began to be felt when it was no longer possible to hold that the utilisation
of products formed part of or was included in the product. This holds good for a hammer but not for a computer. It is precisely technological evolution that requires increasingly greater investments, not for the tools, whatever they are, but for their utilisation over time.

When one buys a car, a washing machine, a computer today, the price paid (which already pays for a good number of service functions carried out during manufacturing) is only a first payment to be followed by others for the utilisation of the product or car whose “use” is no longer “built in”.

Hence, the debate on the difference between material products and service functions is not a question of the sub-division between what belongs to the material and that which forms part of the immaterial. A transport business or service can be considered immaterial or if one refers only to the vehicle that does the transporting, it is a material tool. What is essential is to take into consideration the PERFORMANCE of a system or a product over time, for which services have a decisive weight (an economic cost).

What is at stake, therefore, is the very notion of economic value. In a period when the absolute priority was the development of the wealth of nations by manufacturing all kinds of goods, it was possible to concentrate on the notion of value defined by the sale price at any given moment.

In an advanced society however, performance over time demands that account is taken of a whole series of costs, beginning from the research stage (before any production whatsoever), manufacturing, then distribution costs and above all utilisation, and finally disposal. Value results from the utilisation of a product or a system during its life cycle. It is about the notion of value founded on a double uncertainty: that of the costs and revenue over time (a good part of which is in the future) and that caused by the duration of the utilisation cycle.

We are not dealing here with a new economic “value” for sheer intellectual pleasure, but with showing what happens in reality. An economic and social reality in which, at the end of the day, as the English say, we must confront an uncertain world with increasingly greater risks of every type.

The effort of common sense and management can no longer be geared to promises of certainty, but rather to all those methods that allow us to turn our uncertain reality, full of risks as it is, into a MANAGEABLE reality. To this end we must stress (where they exist) the margins of better actions available in the majority of uncertain situations.

8. Reversal of Perspective

One of the key ideas on which economics is based both in theory and in practice is that we live in a world in which resources are scarce and poverty is still all too visible, even in the most advanced countries. Free products exist, such as air, at least so far. But to live or to survive we usually have to work, in one way or another.

In paradise, instead, there should be an unlimited abundance, no pollution problem, no work, neither salaries nor unemployment. On earth it’s clear that we are in a purgatory and it would be wise to make the best use of it.
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The development of the Industrial Revolution can be considered as a heroic development against scarcity. Classical economics concentrated on understanding how to stimulate to its maximum the capacity for producing what is known as supply. Demand, motivated by necessity, can only follow.

But there was a crucial moment! In order to work well the Industrial Revolution increasingly spread the use of money to form the capital needed for the acquisition of machinery and to make exchange easier.

From this it follows that the demand, the need to have products for consumption also had to be expressed in monetary terms. Consumers have to be able to pay for their purchases, so that their demand may be met.

All this might seem banal and obvious but this was not the case during the first 150 years of the Industrial Revolution. Actually, apart from the periods of war, naturally inflationary (when prices increase), and a brief period in the 1870s – following a large importation of gold – economic crises until the beginning of the 20th century were deflationary ones. Too many products were produced for too few purchasers as consumers did not have the necessary money. Penury and poverty on the one hand and over-production on the other. Not even the great economists have managed to calculate the extent of the Industrial and technological Revolution and the essential role of monetisation of commercial and social relations.

So, after a century and a half in which economic experts concentrated on “supply” (the production aspect), priorities were reversed thanks to the economists of the first half of the 20th century, especially John Maynard Keynes and at a more philosophical level John Hicks.

Keynes was an expert conservative, an intellectual and lover of classical ballet and champagne. Of rather free habits for the age. He revolutionised economics though. If there was an excess of production the demand could be financed – through the State and public authorities – even if this resulted in deficits, on condition of course that this did not go so far so as to cause inflation.

A balance between supply and demand had to be maintained so that the maximum use might be made of all the factors contributing to supply and demand.

In this way Keynes brought about profound changes in the culture of that age: he rendered debt not only morally acceptable but even desirable; he even opened the way to the intervention of the State as an economic entrepreneur.

Since then, whether one was right or left wing, it has been thought possible to regulate the economy mainly according to demand. In recent years newspapers have carried out detailed inquiries to discover whether car sales or the sales of other products were increasing sufficiently, little, or not at all. Buy, buy to keep the economy afloat! And if you are a business person then obviously you prefer to have a greater number of clients rather than the opposite.

But since 1973 in the industrialised countries especially, there has been a tendential revival of inflation, sometimes reaching a rate of over 10%. Since then the average rate of growth has significantly diminished. What had happened? Why was it not possible to reraise
the economy everywhere to the rate of 6% annually, something that would have helped more than a little to resolve several problems, such as welfare financing.

In my opinion, not enough attention was paid to the fact that on the supply side – the production side – there had been a move from a prevalently manufacturing economy to one based on services. The very notion of economic value, and hence of growth, was tending to change. The rhythm of technological innovation, increasingly dependent on basic research, could not but advance in an uneven manner, when some basic discoveries were available and utilisable. It was not enough to invest in massive programmes of technological research to be certain of quick results.

Forced by necessity to curb inflation and having become increasingly independent, the central banks were committed to carrying out policies based on the control of the economy through monetary tools.

From the point of view of economic theory on the balance between supply and demand, I think it is useful to suggest another way of viewing this relationship. Classical economics had favoured the supply aspect (production), the neo-classical economics (of the last sixty years) concentrated on demand. Both suppose that the point of reference remains the notion of equilibrium between supply and demand.

It could be thought that in the service economy we are dealing simply with a return to the economy of supply, given the suggestion for a more detailed analysis of the ways of producing the wealth of nations today.

But this point of view is insufficient, if one also considers the definition of the value of utilisation given earlier. In reality, in real economics, as in life and nature, productive activity always exceeds, often by a lot, consumption or demand possibilities. Every businessman knows that he will never sell everything he offers but that every product (above all new ones) undergoes a difficult trial period at different levels including those relating to consumers. The totality of the production process therefore must cover the costs of all the surpluses, as in the case of research strategies that take into account the fact that most projects will not result in success.

As far as “demand” is concerned its primary function is that of choice. This function is indispensable and demand will pay a price, not only for the purchase of a product or a system but will be responsible, directly or indirectly, for all the expenses relating to its utilisation over time. Certain classical economists say that, in a notion of equilibrium, so long as one half of the equation is understood (supply = demand) the other is also automatically understood.

It may be rational but it does not make much sense. In the service economy, supply and demand, production and utilisation, must both be studied and understood well within their own logic and manner of working. Demand costs in the utilisation period remain uncertain for a long time (and even after the utilisation stage).

Finally, one must also consider that the user very often plays a part in producing results. Alvin Toffler has spoken about the “prosumer”, i.e. the producer-consumer, in whom the two
functions are increasingly less distinct. The paths of contemporary economics offer enormous possibilities and challenges.

9. Non-monetarised Activities

The Industrial Revolution was able to be born and develop thanks to a decisive number of social, cultural and technological factors. Some books have highlighted how at the end of the Roman Empire or later during the Middle Ages, there had been notable progress and innovations too.

The rest was missing, especially the great spread of money, stimulated by the explosion in local and international trade. There was no money, no monetary savings and without savings no capital for investing in new machines and technologies, even though at the beginning this investment was limited to about 5% of the turnover of new entrepreneurs. They too had to make a cultural leap, from tradesman to industrialist.

Money is often despised (especially as some cynics say, by those who do not have enough of it), but without it there would be less freedom and less wellbeing in the world today. Certainly, it is a means of power and human nature knows how to become diabolical. Nevertheless, the whole structure and working of the Industrial Revolution revolves around money as the most efficacious means for fighting poverty. The goal is still a long way off, but without money it would be even further off.

Let us now take a small step forward: In Samuelson’s book, from which millions of students have learnt the basics of economics, he states right from the first page that economics deals with business and transactions (exchanges) that can be based on money or without money. Be careful not to misunderstand this. I have thought about it. Actually it is necessary to understand that value (almost always monetary) depends on an exchange. Now, in certain exchanges money is not used: we are speaking here of barter.

In this case too there is an implicit value that can be reduced to money, even though it may not be explicitly used. Three books can be exchanged for a kilo of chocolate. A transaction has taken place just the same and the value of the books can be deduced indirectly.

Why this discussion? Because in the service economy, the production and utilisation part carried out without recourse to money is increasingly important.

Value is not derived from the exchange alone. When one pays attention to the notion of utilisation (of a product or of a system), one understands that this depends in large measure on the activities and the efforts related to self-production and self-consumption. And in this case there is no exchange.

Let us think of all the self-service or do-it-yourself activities. It can be about a restaurant where we go to get our dishes, or a table or a wardrobe that we ourselves build at home. The total value is given by the final result and it is not possible in most cases to quantify the work done by ourselves in monetary terms. A senior manager who earns 100 euros an hour, and even more, and goes to get himself a glass of water cannot quantify the value of this act: three minutes computed on the basis of his salary (the time taken to look for the glass and fill
it) cannot be compared to the value of a glass of water on the market. Let us think of all the time necessary to learn by ourselves how to do all kinds of things, to cook, to use a computer, carry out small and medium repairs, change a baby’s nappies. If there is no exchange, there is no benchmark, not even an indirect one that offers any indication as to a price on the market.

An important corollary in a service economy, therefore, is that which states that there are not only directly or indirectly monetarised activities (i.e. monetised or non-monetised, making use of money or not for a transaction), there are also non-monetarised (and non-monetisable) activities that are not linked to an exchange but that are decisive in ensuring that utilisation of goods over time give the best results. Results that are not flows but stock, as we have already underlined.

The measurement of results (by means of indicators) will also take into account the quality of every performance. If something is made well the costs will be less and the product will be better. It is necessary, however, to measure the results during utilisation. A well maintained car will require minor repairs. Perhaps the global repairs industry’s turnover will decrease, but its productivity in terms of individual profit will be greater.

In the service economy, there is therefore a whole research sector waiting to be set up to explore the effects of activities that contribute to increasing the wealth of nations and that are not “monetised”.

The other fundamental aspect of this question consists in defining the passage between what is “monetised” and what is not. Let us imagine that a new technology, for example in the communications sector, reduces all its costs to zero. At that point, every communication could become free: a great step forward for our material wellbeing. On the other hand, let us suppose, as is already happening in the case of water, that in the centre of some cities we have to acquire air in a bottle, in order to breathe normally. In both cases, the disappearance of the monetised turnover or its increase indicates only the variation in the monetisation of an activity that has nothing to do with the real increase in wellbeing. For this other measurements are needed (of result, of utilisation).

Monetisation, in the service economy too, remains an important foundation, often even decisive, of economic activity. However we will be forced to account adjacent areas where non-monetised activities, caused or not caused by technological evolution, become an increasingly important, or better, very important, strategic aspect of economic development tout court.

From this viewpoint it will be possible to assign value, even as economic and social activity, to all the work undertaken in our society by the various voluntary organisations. Let us measure the true benefit, i.e. the result of monetised and non-monetised activities, and we will reduce some irrational aspects of our economics. Allocations are very important in the modern world but they are not enough to guarantee a good economic result, whatever it may be.

I was convinced of this one day when, in my Geneva office, the young Xerox technicians who came to check or repair the photocopier suggested that I should organise a drink after
work. The machine in question was the first in its category to have reached a million copies in the Genevan canton. There were five technicians. They had also invited their boss and brought some bottles of champagne. The crowning moment of the evening was when they amused themselves by comparing the booklet that recorded the number of service visits with that of the copies that had been made before another visit had been necessary. “See,” said one of them, “after my visit that day the machine made almost 50,000 copies, while after your visit it made only 40,000”. And they made fun of each other comparing the figures. A beautiful example (still exemplary) of the Swiss taste for quality of work. But what is there to be said about its economic value?

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After the Second World War GATT (General Agreement on Tariffs and Trade) contributed widely to economic development, avoiding the disastrous protectionist experiences that had characterised the period following the First World War.

It was a matter of a negotiating mechanism between the different States to limit, sometimes abolish, the obstacles to international trade, (customs tariffs, the imposition of quotas at different levels for imports, and a whole series of other bureaucratic obstacles). Trade of course concerned the import-export of products, in the purest and most orthodox Industrial Revolution style.

Services quietly appeared in the GATT negotiations. During the Tokyo round obstacles of a non-international trade tariff type began to be spoken of. In effect, these concerned a certain number of service functions (for example quality control). During the following round successively named the Uruguay round, negotiations began to take place specifically dealing with services, in a separate area or hall. They were not yet dignified with the term “products”. The experts in the subject tried for a long time to explain that services were nothing other than “immaterial” products. The reader knows what I think of this definition.

Whatever the case, at the conclusion of the Uruguay round some principles were agreed for the liberalisation of world trade services, that underlined the need to avoid discrimination in one country against the commercial activities of another country that had established itself there. Seen more clearly there were means that in the end opened up the way to investment. Economic reality had begun to prevail.

Actually in a modern economics based on service functions every product or item exported to another country needs a whole infrastructure in place for distribution, financing, maintenance and finally for waste disposal. This is without counting activities such as assembly and training. All this requires investment. Consequently in our new service economy, trade and investment are no longer alternatives. They are complementary and each needs the other. In a predominantly manufacturing economy, it could be said that it was possible to choose between exporting cars to a third country or investing in creating a car factory. This is always possible, but the most important part, even in the most traditional exportation, is that relating to investment. An investment that constitutes an ever more decisive condition for making exporting possible.
One also has to understand the political and social advantage of this transformation. In the case of the industrial or traditional manufacturing economy, it could be stated that investment sometimes became foreign tampering in a country. In the service economy, investment is more and more linked to onsite utilisation of products and goods, especially for the local population. We are dealing with a great opportunity for development that can be realised at the local level, with the specific contributions of the place.

Studying and understanding the significance of the service economy, therefore, could offer very favourable opportunities, not only for WTO (World Trade Organisation) negotiations but for the spread of a positive and realistic perspective on the globalisation process.

Economists have a great responsibility in the process of understanding and identifying the necessary means for the development of civilisation based on world interdependence.

About 20 years ago, in order to stimulate some thought on this matter, Jacques Nussbaumer (now deceased), Raymond Krommenacker and I founded the World Science Forum in Geneva. It organised a series of conferences and distributed some books. The Forum then moved to Paris and Dublin. According to me it wasted a little time in discussing the idea that services were “immaterial” products that, “if they fall on your feet, you don’t feel anything”. Not even in your head!

Obviously we hesitated a long time over launching the debate on a crucial point, the adapting of economic analysis to what really are the functions of services. Some initiatives parallel to the Forum are now very active, such as The ASEC (Applied Services Economic Centre programme – a network of experts in various types of services) programme which relies on the Geneva Association.* For some years now it may be observed that there is a flood of conferences, congresses, publications, that begin to spread a little everywhere, from Hong Kong to Paris. The train is on the move and is speeding up.

10. Broadening the Horizons of Political Economics

In the next chapter I will return to a number of very important concepts that characterise the service economy, such as pure risk and entrepreneurial risk, vulnerability, moral risk (moral hazard), insurability (the new complementarity between public and private bodies), the effects of the so-called asymmetric information, diversity and complementarity of financial services, the new functions of capital in the service economy, etc.

Here it is necessary to add another word on the problem of ecology and the environment. The questions that for three decades have stimulated this movement – beginning with the Club of Rome – are very like those that have given birth to many studies on political economics, though neither the economists nor the ecologists have cared to sufficiently compare the texts.

The great economists of the past had an essential preoccupation – for some it was even a matter of a moral commitment – the improvement of the human material condition.

* See also www.newwelfare.org and the “Wealth of Nations revisited” project, promoted by members of the World Academy of Art and Science (WAAS) and SEED, South East European Division of WAAS.
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This meant making the best use of the earth’s resources.

The ecologists talk about resources in the broad sense, the economists struggle to push themselves beyond what is defined by a price. From this derives the importance in the service economy of analysing and studying the passage between monetised goods and the non-monetised ones. To bring a product under economic scrutiny only when it has become scarce following a process of pollution and ignore the original cause of the scarcity long before it has become visible (i.e. marked by a price) are not satisfactory.

The horizons of political economics in any analyses and theories have to be extended to include the passages from non-monetarised and non-monetised towards the monetised and vice versa.

It is an accepted fact that economics tends to be active and efficacious in the short term. This is not always true: insurance for example covers risks that can appear after tens of years.

The ecologists are right when they suggest that everything possible should be done to preserve the earth and its resources for the long term. On this point they have achieved a great political victory after the word “sustainable” became an accepted word applied to the notion of growth and development.

The great problem that contemporaneously concerns economists and ecologists, however, is the long term forecast. The more time passes the greater the uncertainty that can distract from an objective, in both the positive and the negative sense. Once again we must not be deceived about the significance of science. There are no absolute good results, but there are better results. To believe in the possibility of one hundred percent scientifically certain forecasts means running the risk of falling into the same trap into which so called scientific Marxism fell. Let us not make the same mistakes: That would be a new and very serious form of social and political pollution.

If the “precautionary” principle that is often spoken of means anything it is of the reduction, the control of risks and vulnerability, of repairs to and indemnification for damages. It is often said that zero risk does not exist: to want to believe this is the greatest risk. Does this mean we should never go to bed, the piece of furniture on which a great majority of men die? We must, we want – I hope – to live: to understand, to reduce, to manage, to utilise risks. And to sleep.
“But my dear Sir, we are all centre left!” Raymond Barre told me in Paris, in his apartment in Rue de Bagatelle. I was absolutely astounded. I had just told him that I knew Altiero Spinelli, a member of the European Community Commission in Brussels, well during the period when he was its Vice President. Raymond Barre then proceeded to sing the praises of the intelligence of the Italian Commissioner who had founded the European Federalism Movement in Italy, and who, before the war, had been imprisoned by the fascists, as an executive of the communist youth. It had been his friends in Nenni’s socialist party who had presented him as a candidate to the Commission in Brussels. Raymond Barre’s tone of voice was firm and sincere and I looked at him in awe which must have been very evident, given his reputation as a moderate right winger and Gaullist. Hence the unexpectedness of his statement.

It wasn’t only the indirect confession of my European federalist radicalism that was at stake. There was me, a contributor to the Club of Rome, facing the man, who at the time of the controversy brought on by the report on the Limits to Growth, had publicly taken sides in Brussels against the Club’s theories. My diplomatic instinct getting the better of my courage, I decided it wasn’t the appropriate moment to refer to this matter.

It was the spring of 1973 and in principle I had accepted the offer to become Secretary General of the Geneva Association. The founders had also suggested to Raymond Barre, who had just returned from Brussels, that he become President. His agreement, as much as my final commitment, depended on that meeting.

The discussion lasted more than two hours and ended with another sentence that I’ve never forgotten: “Very well, dear sir, I think I’ll accept and it’s clear that ours will be a frank collaboration. We will truly discuss every important problem without hiding anything from each other”. I rejoiced at such a declaration of commitment to work, seriously accepted, and at the obvious rectitude, balance and good sense of the individual who from that day on I have always considered one of the most remarkable men I have had the good fortune to meet in my lifetime. One who, three years before becoming the French Minister of Foreign Commerce, and then Prime Minister, followed with constancy, friendship, knowledge of men and things, and with lively and sound judgement, had seen all the early ups and downs of the Geneva Association.
Once a month on average he came to the Association’s little office (50 square metres) in Chemin Rieu, in Geneva, to discuss various problems, not counting the telephone discussions or my visits to Paris. It was he who suggested the publication of a series of texts on our research which, following the example of the “Princeton Papers”, was quickly transformed into a quarterly magazine, the “Geneva Papers on Risk and Insurance”. It was he who immediately offered to convene at Geneva the first meeting of the European Risk and Insurance Economists, attended by 8 participants. This initiative carries on today, each year in a different city, with almost 50 European and American participants, chosen from among many candidates.

There were many difficult battles which we had to fight side by side.

1. Risk Management: Key to Economic Development

The Geneva Association, officially known as the “International Association for the Study of Insurance Economics”, had been founded by half a dozen CEOs of large European Insurance companies who felt the need to explore the evolution of insurance faced as it was with great economic, social and technological changes. They realised that something important and new had happened.

Given my experience in industry and at Battelle I had two reference points: on the one hand the economy would favour service activities while on the other risk and vulnerability management would become a key to economic development tout court. When they suggested this work to me, I saw in it a confirmation of my own personal analysis: services plus vulnerability led to “insurance” or – at a more general level – risk management. From my point of view, it was an unmissable opportunity, given my own ideas. But, especially at the beginning, I curbed my enthusiasm: it wouldn’t do to frighten those who wanted to engage me and who could have thought that I was an ambitious “theoretical” intellectual. At Battelle I had learned that one should always understand well the motivation, the level of readiness of one’s sponsors and their ideas. Industry already had a good experience of serious research. I often spent a whole day at Battelle with top executives of IBM or other large companies discussing a proposal on a specific and apparently clear topic in order to be sure of the sense of every single word. Often some of their opinions could be questioned. Insurance – as I soon learned – did not have much experience in professional research. It was necessary to proceed slowly and have patience, lots of patience. But it was a completely new adventure, even though the ground being explored was based on a centuries-old professional tradition.

On the one hand I felt like Buffalo Bill, on the other I didn’t have to deal with a tribe of Indians but with much more refined gentlemen than those in industry, from the economic point of view very conservative – and with good reason. For a very long time they had been used to representing a “secondary” economic activity, outside the great industrial adventures, untouched by the great changes and great whirlwinds. The Geneva Association would rightly become the symbol of this prudent but inevitable movement, which pushed, and today still pushes insurance to the centre of the economic storm zone. It is a real revolution.
Now, on the one hand I observed with great interest the birth of a new institution in some senior insurance executives, on the other it was necessary to remain prudent so as not to finish up just like Buffalo Bill as a clown in a circus. It was necessary to make the new economic facts talk, to carry out investigations, to bring out new challenges. The Geneva Association started out with a great President, full time work, a part time secretary. It was meant to come to an end automatically after three years, unless there was a unanimous decision on the part of the members to continue. This time limit was moved back three times before being finally removed.

All around therefore, there was justifiable scepticism, beginning with the President of Doxa in Italy. At that time this was the leading pollster company and was run by the ex-Dean of Trieste University Pierpaolo Luzzatto Fegiz. The Italian founder of the Association Fabio Padoa had given him the task of interviewing me in order to assess my aptitude. I later read his report: he considered me qualified to carry out the work but didn’t think I would accept such an apparently vague assignment, with so few resources: to organise a “think tank”, a centre of thought on European (later to become world) insurance. I had not revealed all my ambitions to him.

Two months after the start of my work, a French member, Bertrand Percy, invited me to lunch in his company’s premises, and while drinking a glass of excellent Sancerre, he said to me: “My dear sir, you should know that I agreed to take part in the group promoting the Geneva Association out of friendship for the person who asked me. But I see nothing useful in your work and I fear that you won’t have it for long”.

He was a very dynamic and intelligent CEO on financial matters and I am sorry that the implicit challenge did not go well for him and that he had to retire from the insurance sector in recent years.

In a German company at that time they told me that after all the Association cost each partner as little as the cost of a small fire. It was a little depressing to listen to this kind of comment. In compensation there were others like that which I heard from the mouth of an English member, Julius Neave, during a seminar on insurance at Cambridge. In concluding his speech he mentioned the fact that insurance had to open up to the outside world and that the Geneva Association represented an important step in this direction. At last.

With another German member the risk that all would end badly was worse, but all in all it ended in the best of fashions. He too invited me to lunch to tell me, basically, that given its limited means the Association should limit itself to occasionally asking some university experts to intervene for the purpose of supporting some interesting points on behalf of insurance. I obviously thought that he was deluding himself if he believed that I had accepted my employment with the intention of limiting myself to this type of activity. I was aware that what I was doing was taking the correct direction for insurance, an industry that had the good fortune of finding itself in a period in which the economy needed its services, even at the level of economic theory. Making this situation known in some concrete cases was worth more than all the high priced television or other advertising contracts when it came to
improving the “image” of this sector. What I gave my attention to was the decisive card that would leave a unique mark in the history of insurance. A card not to be wasted.

In the 1970s the business sector, particularly in the United States, had begun to be aware of the need to keep a close watch on the vulnerability of production and the use of new products. The designation “risk manager” was increasingly more widespread to indicate the function of one who established the balance of a business’s risks, evaluated the totality of existing insurance contracts, decided, or suggested to the Chief Financial Officer – in the majority of cases – how to manage these risks. He also dealt with all matters of security management. This “Risk Manager” could cover part of the risk using external insurance, increasing precautionary and preventive measures; he could also decide to accept some risks without insuring them, or still again create a so-called “captive” company to self-insure their own risks. Often in the latter case the captive companies could reinsure so as not to keep the risks to themselves, something that could create difficulties in the balance sheets in negative years.

Among my first initiatives there was a study – which in part I carried out myself – to assess the state of development of risk managers and risk management in European industry especially in the chemical sector. The insurers’ fear was that risk managers would end up pushing companies increasingly away from external insurance. Along with others I thought that a part of the risk managers’ profession would have developed within industry (they were already organising conventions with 6,000 participants every year in the United States). On the other hand a more refined analysis of businesses would show increasingly greater risks to cover. In any event, it’s true that in the United States half of all insurable industrial risks were dealt with within the industrial companies themselves.

In this, to be truthful, rather modest study, the new situation, in full evolution began to be better identified. It was discussed at a small meeting at which Raymond Barre, President of the Association, and the insurer who had defined my task as that of passing on the orders for texts supporting insurance interests, both took part. The latter was in a bad mood because of this initiative of mine. Later in a restaurant, serving traditional Valais cuisine, in Geneva, he exploded violently against Raymond Barre and me. We were sitting next to each other, literally elbow to elbow. After a quarter of an hour he calmed down and it was possible to finish dinner. The president listened politely, without showing the least sign of impatience and we never spoke about the incident later. Four or five years later, however, that same insurer told me: “I must congratulate you, you did a better job than I could have ever done”. What a satisfaction! I appreciated the fact that often those who criticised us, even ferociously so, took a deep interest in our work from close up and in a certain way helped us to be more responsible. At times it is unpleasant but much more constructive than the attitude of those whose appreciation simply means that they consider it neither useful nor important to read or understand what we do.

2. Studies on Industrial Vulnerability and Risks

Right from the start of the Geneva Association’s activities I set up a series of studies on industrial vulnerability and risks. Japanese and European statistics indicated that the
Itinerary to the Third Age

premiums and damages in this sector had been increasing for years, around twice as fast as the rate of growth.

To get down to details I turned to the great research centres of the world such as Battelle, Stanford Research Institute, Arthur D. Little, Diebold and others, saying that they should help me open up a new market for them. In this way I was able to obtain studies at a fairly low price, taking into account the promotional value of what I was asking. In any case it was simply a matter of suggesting that they should make good use of the knowledge they had in certain sectors and review it under the aspect of an analysis of its vulnerability.

The first study of this kind was carried out on vulnerability and the risks linked to computer use. During my time at Battelle, I had met Olaf Helmer in the United States. With his “The Future Institute” he had made his name for having developed the “Delphi” method. This consisted in bringing together a group of some tens of acknowledged experts in a particular sector who were asked some relevant questions. The answers gathered in this way were then passed back to them once or even twice, to give each of them the opportunity to reflect on, and to modify their first analysis. Changes of opinion were frequent and showed that the questions had been considered in depth. Helmer had just carried out a study on computer risks for a Swedish insurance company (Skandia) in the United States. Having come to an agreement with them I entrusted an analogous study to the Diebold office in Paris: they knew the sector very well, had at their disposal the questions prepared in America and the results to compare with. It was the first study in Europe in this field and 3,000 copies of the Geneva Papers in which it was published were distributed, in most cases on request.

This study also suggested the imminence of the great expansion of new computers, particularly of the small and very small ones.

When a member of the Lloyds of London secretariat invited me to lunch, curious to know what this strange Geneva Association was, I had a copy of the Diebold study under my arm. He gave it only a passing glance. He didn’t really know much about professional research. He had never heard of Battelle. He judged people in the old manner, on the basis of their culture and style. He concentrated on the subject of slavery. Fortunately a year earlier I had been to a meeting of the Club of Rome in Dakar in Senegal, and I had visited the building from which the slaves were sent to the Americas. I tried to bring the discussion back to computers and the risks connected to them, but in vain.

Shortly after, it came out that someone at Lloyds had supplied insurance cover to a company that rented out computers to safeguard them against obsolescence, i.e. the danger that the machines bought for hiring would soon be replaced with new, more advanced machines, and they would find themselves with a stock of unusable computers. A reading of our study would have been of help. I was very upset by the lost opportunity, but I didn’t labour the point as I did not want to appear arrogant. In the world of professional research it is not enough to recognize an isolated fact: a mind-set and organization suited to making use of the information are needed. At the end of the day the lunch at Lloyds had been excellent and the gentleman was very courteous and friendly. I would have caused embarrassment over a problem that required maturing over a longer term.
On the other hand, Lloyds completely redeemed themselves in my eyes a few years later, when I had launched some studies on space activities. We had organised a seminar in London with Jim Bannister, with whom we would carry out many initiatives for more than twenty years, on the risks of satellite launchings. A representative from NASA also took part.

I remember a very professional and able Lloyds broker, who had contributed to the cover on a satellite that had been badly placed in orbit. The insurance was paid, but he had the idea and the courage to invest in the recovery of the satellite, thus making a subsequent gain.

Later on, the Association dealt every year with the subject of risks in various fields such as robotics, superconductivity, the packaging industry, storage, and the transportation of liquid gas, even industrial cooking systems and biotechnology.

3. Synthesis of the Various Types of Insurance

A first big change in insurance revealed itself and took place from the 1970s: the synthesis between various types or categories of insurance in relation to the level of vulnerability of businesses and eventually persons too.

Traditionally insurance had developed through the identification of a type (class) of risk (fire, theft, car accident, skiing accident, etc.) among which a certain homogeneity can be determined (a bicycle and a locomotive cannot be put in the same group), a certain scattering of risks (it is not necessary that all the probabilities of loss be concentrated in the same place), a certain level of frequency of possible damages (thefts cannot be insured against if, for example, in a year there’s a loss for every two insured), a certain limit to the maximum possible damage (for example, the damage caused by a meteorite that destroys a city of a million inhabitants).

Actuaries will explain it better with technical terms such as seriousness, frequency, variance (an average can represent damages relatively close to this average or very great variations such as the cost of the destruction of a little sail boat or a cruise ship with 5,000 people on board).

The phenomenon of the growth of risks and vulnerability (and hence of their costs) led to the development of the risk managers to whom I have already referred. Taking a company’s vulnerability into consideration means that what counts is the cost of the losses independent of the origin or class of risk. If insurance always has to refer to specific classes of risk in order to manage them in a reasonable way, the insured has to identify his vulnerability whatever its cause.

That is how it is when a business suffers a fire breakout. It also risks losing clients if it cannot deliver its products. Some of those products could be badly made and cause harm to health or in some other way. If they are defective they must be withdrawn from the market.

All these aspects have obliged insurance to create well-prepared packages of insurance “products” which were originally developed separately. On the one hand, for example, fire (the cost of rebuilding a damaged house or factory), on the other the indirect losses caused by the fire (consequential losses) when the fire prevents one from fulfilling a delivery contract,
and then all the consequences connected to various types of responsibility. Around thirty years ago at the Geneva Association we carried out the first study in Europe on the problem of withdrawal of defective products, a situation that brings into play all the obligations linked to responsibility. It was very amusing to read in our report that withdrawal of some products from the market was like trying to put toothpaste back into the tube.

In any event European industry, somewhat later than the United States, understood the interest of an open and transparent policy on the subject of withdrawal of defective products, and it is not unusual to read announcements in the press about the recall of that type of tyre or that other type of domestic appliance or car. Such incidents are rare but sometimes costly, and cannot be completely eliminated in our imperfect world. It is advisable to deal with them in the best way possible.

Here then is confirmation of an essential point. In economic practice, but not only there, vulnerability is a concern that has already caused important and very obvious changes in the business market.

4. Reflections on the Concept of Risk

Another strategic question that emerges together with the growing importance of vulnerability management concerns the idea that everyone, particularly economists, has of the concept of risk.

Well after the beginning of the 19th century risk was not taken into consideration by economists. It was a subject for sociologists, from Weber to Sombart and others. Price balance excluded uncertainty on principle: in a society based on science it was thought that risks and uncertainty would one day be almost eliminated. This way of thinking lasted a long time and is still lurking in the opinions of many.

At the start of my work at the Geneva Association I met a certain number of top executives resigned to the idea of an insurance condemned to a minor role and without a future. The CEO of an important insurance company said to me one day: “But Signor Giarini, you delude yourself. In today’s world based on science and technology, insurance is destined to disappear. If everything becomes increasingly foreseeable, there will be increasingly less need of insurance”. I thought exactly the opposite. This is why the role of insurance and economics cannot be understood without thoroughly studying their cultural premises and acquiring a real understanding of the scientific process.

At the Geneva Association therefore, we tried, with some success, to promote a discussion on this point of view, with publications, meetings, and conferences involving eminent scientists. The contribution of Nobel recipients such as Ilya Prigogine and scientists such as Karl Popper, Hermann Bondi and Walter Weisskopf, to mention a few, confirmed that this line of thought stood up well.

In particular, referring to one of our publications on *The Limits to Certainty: Risk Management in a Service Economy*, Ephraim Katchalski-Katzir, President of the Weizmann Institute of Science, to mention a few, confirmed that this line of thought stood up well.

Institute, wrote: “You have managed to bring the uncertainty of physics into economics thought, and have done so in a very clear and convincing manner: your analysis of the importance of assuming risks in a modern economy and the study of the origins of uncertainty are particularly brilliant. You have produced a shrewd and exciting analysis of the risks run by people as individuals in many companies and by society as a whole, and you have shown how we have no other choice in the new era in which we find ourselves but to react in a suitable way to the various types of risk we face.”

Here was a judgement which went a long way to justifying the commitment to working for the Geneva Association.

As far as economists are more particularly concerned it was only in the 1920s that Frank Knight wrote a first book bringing out the fact that when it came to investing then the more dangerous the investment the greater was the interest required and vice versa. This meant that for the first time it was acknowledged that there was a certain autonomy in the notion of risk. All this seems obvious and simple, yet Knight’s name is not as well-known as the application of his ideas in every financial activity.

The risk of which Knight spoke and of which most economists, financiers, business people today speak, is none other than one of the two forms of risk of the service economy. On the one hand there is the risk on the part of the entrepreneur who depends on our actions and initiatives (we invest money, we marry, we go on a holiday, we buy a car, we study a given subject in order to qualify for a profession etc.).

Vulnerability on the other hand represents a pure risk. Insurers speak of “Act of God.” Any activity, including those “as entrepreneurs”, that we take on, is also subject to its own level of vulnerability.

Many economists, and often even other financial experts, do not acknowledge this distinction. Over the last thirty years, these have monopolised the idea of risk management in order to define the evolution of money management this being in most cases, an “entrepreneur type” risk activity. While the term “risk management” came about initially in industry, especially in relation to the management of pure risks, dependent on the vulnerability implicit in every plan or situation. These two types of risks are complementary but very different. Pure risk lacks a university and cultural tradition, that of the economists and financiers. In fact it was expected that this vulnerability, which represented the imperfections of the present, would disappear with the development of technology.

Instead there was 11th September 2001, nuclear and biological risks, pollution, environmental risks, social welfare and the vulnerability of welfare and pensions systems. All pure risks are linked to technological and social evolution which to a great extent condition economic evolution of the service economy characterised by the need to obtain the best results controlling every kind of vulnerability.

Finally, there is an important lesson to be drawn from the study of industrial risks in many sectors: it is the one concerning the growing specialisation, complexity and concentration of vulnerability.
Imagine wanting to insure a satellite launch into space: such an occurrence can be counted in a few tens, even less each year. Compare this with a car insurer who has hundreds of thousands of customers. In the latter case the probability of accidents and future damage has to be shared by such a large number of cars that a forecast can be fairly close to reality. Instead for satellites a bad year could mean possible losses two, three, five, ten times greater that those reasonably forecast.

The logic of industrial specialisation and activity transforms some classes of risks into statistical units, often more limited in number. In these cases forecasts of accidents become increasingly uncertain. This kind of uncertainty is one of the elements behind the foundation of the Geneva Association. Uncertainty has increased even among insurers.

This was a challenge I did not manage to accept. I tried to tell the economists: you often put forward the concept of the economy of scale and specialisation. Why don’t you suggest an analysis that takes into account the cost of the increase in uncertainty due to specialisation? For their part, actuaries have been studying for a long time now what they call the credibility theory: faced with the increase in the classes of risk with increasingly limited frequency of damages, how does one aggregate – put together – various groups of classes of risks in order to find a better way of managing vulnerability. Economists and actuaries, get yourselves together to review the very concept of scale in economics.

5. Studying the Systems for Determining the Price of Insurance

I have to suggest another point to the reader. This concerns the question of the evolution of insurance and its significance for the analysis of an essential subject: the setting of insurance prices as a key reference point in the new service economy.

In classical industrial economy, prices are usually fixed based on production costs so as to meet a reliable demand.

Contrarily the insurance experience has always been an “inverted cycle” in which the price has to be set based on the future occurrence of an uncertain event.

Systems for determining prices, even in the manufacturing industry, today increasingly resemble the methods used for insurance policies and are moving away from the classic, simplified “industrial” model founded on “balance.” Some costs caused by the use of products or systems (including waste disposal) actually require a judgement as to their future costs after they have been sold and used. This comes closer to how the insurer acts and thinks. This is particularly clear in the case of leasing. The increase in the cost of civil or product responsibility caused by the sale of products or services has also become a cost related to the future performance of products and systems, and so must be included when calculating “production costs”.

While the classical “industrial” economy could have as its objective a “perfect balance” in terms of price, taking into account increasingly “complete” information, the uncertainty concept is an integral part of the service economy’s theory and practice. Prices increasingly reflect a probability judgement on the future costs of usage. In these circumstances no
“scientific” information can ever produce what could be considered “perfect” information. Political economics has to study much more closely how the insurance pricing system works.

This is a key reference point for the whole of economics.

6. Insurance and Welfare

Dominique Strauss-Khan and Denis Kessler were two young university economists whom I met for the first time in 1979 in a small hall made available to the French Federation of Insurance Companies in Paris, on Boulevard Haussmann. It was impossible to imagine at that moment that in the 90s DSK would become a minister in the Jospin government and today President of the International Monetary Fund in Washington; DK was to become President of that same Federation and is now president of SCOR, the leading French reinsurance company.

At the time I was suggesting and soliciting studies on social vulnerability, in the first instance those relating to pension systems. Following debates in the Club of Rome, and above all my analyses on the fact that the slowdown in growth would be a long lasting phenomenon, it seemed clear to me that this would cause long term problems for the maintenance of state pensions based on distribution at the levels then in force. The problem of the increase in life span was also beginning to appear on the horizon.

Today, after three decades of experience one has become accustomed to considering a 2% growth a good average. In the first half of the 70s governments (and the economists who advised them) saw it as a crisis rate, and that it would return to “normality” at around 6%. From this sprung a whole series of economic policies based on debt that the future “normal” recovery was to pay back. And so an increasingly high level of inflation arrived. Even in Switzerland it rose above the 10% threshold and in some European countries it exceeded 15 and even 20%.

It was, as was said at that time, “stagflation” (stagnation because real growth was around 2-3% with strong inflation). Neither governments nor experts were prepared to consider the very simple fact that it was a problem — at the end of the day a classic one — of relative rigidity of supply, linked to changes in production structures. In official circles it was customary to test the demand and one did not dare acknowledge that science and technology weren’t a magic wand capable of transforming production conditions according to necessity and in the short term.

To me it seemed urgent therefore, that studies be begun to assess the importance, for families, of all their available financial resources: private savings, life insurance, personal property and real estate, safety and social welfare. As to insurance companies it was a matter of better understanding their role. I had in mind a study carried out at Battelle to determine a strategy for developing the beer industry: it had started from the idea of discovering the “added value” of all drinks in relation to tap water. In a bar one can choose a glass of beer, wine, mineral water or coffee. One could then consider the development of beer just in relation to all the possible alternative drinks. Afterwards it was also possible to make an accurate analysis of the different types of beer.
It was natural at first, therefore, at least as a first step, to take stock of life insurance in relation to families’ disposable resources in the field of state insurance. As usual before entering into discussion with the experts, I took up my pilgrim’s staff and went off and experienced several surprising situations.

At that time in most texts on private life insurance social insurance was ignored. At most there were some annexes on the subject.

I went to meet a professor of insurance at a famous university and I asked him about his relations with the teacher who dealt with welfare: “I don’t know him”, was the answer, “I work here on the first floor and I believe he is on the second”. The reasoning of the strategic studies on beer had not reached there. But in this field, of course from the mid-80s, there was a real revolution. Studying the various forms of welfare, comparing them, adapting them, had become a serious affair for a large number of research centres, consultants and universities. It was amusing – and useful – to have lived this first period “Buffalo Bill style”.

Before 1980 I had therefore promoted a whole series of small studies in England, Germany and Italy (and later in other countries), to stimulate the comparison between private insurance and public and private welfare. The study left its deepest mark in France, thanks to the quality of the researchers, Dominique Strauss-Khan and Denis Kessler. They were known for their research on family property and its composition. It was a good basis. Then they had studied and worked closely with a Nobel recipient for economics, Franco Modigliani who had shown how, over the life cycle of persons and families, the composition of property and hence of all their financial resources changes. It was a perfect starting point. They knew private insurance a little less, but were ready to learn. Following the “Battelle method”, I encouraged them to consult as large a number of experts as possible, above all those within insurance companies, in order to hone their knowledge of this sector.

In every research, even the most “quantitative”, one must develop what the English call “feeling” for things or the German “Fingerspotzgefühl” (feeling things on the ends of one’s fingers).

It is also interesting to remember that, in the great majority of the studies for the Geneva Association, I turned to external experts from other sectors, involving many possible specialists from industry, other financial services and public institutions. At the same time, I insisted that everyone should speak about them with insurance professionals.

It was a question of knocking down the barriers and falling on one’s feet. It was also a way of making everyone understand that insurance was becoming increasingly economically important for all.

The Strauss-Khan/Kessler study was published in 1981 under the title “Savings and Retirement – the future of pre-financed pensions” and contributed to launching and establishing this debate for many years. Denis Kessler would later continue to complete and update this core study.

While remaining in Paris, he was the Deputy SecretaryGeneral of the Geneva Association for almost two years before being appointed president of the French Federation of Insurance
Companies. It was his interest in understanding risk management in every field as an important economic problem that stimulated and motivated him even after he became the Head Economist of MEDEF, the Movement of the French Enterprises.

The explosion of discussion on the reform of all the social systems in most countries changed the Geneva Association’s field of action. The interests of insurance were taken into account by the companies themselves and by national and international associations whose scope was to defend the sector’s specific interests. The Geneva Association could not and cannot try to understand, beyond the interest of the insurance sector, where the most important themes for the future of society lie, without prejudice or taking “political” positions. The Association therefore became a means of exploring, of anticipating, and also proof of the indispensable opening of the world of insurance to the great questions and problems of the modern world. The importance of everything relating to modern insurance renders this evolution indispensable, and is translated into absolute transparency. At the Geneva Association there has never been a single classified or confidential study, single report or information. Everything is available to everyone seriously interested in its work.

This attitude has been quite useful in establishing the Geneva Association’s credibility, particularly in relation to the world beyond insurance that had to understand that highlighting the importance of managing risks of every kind was not simply a public relations problem for insurance companies, but a very serious question for the interests of everyone in every activity, in every sector, public or private. I had the satisfaction of receiving this comment from Jean-Claude Trichet, Governor of the Bank of France, and later of the Central European Bank, when I put the Geneva Association’s activities to him in these terms, on the occasion of the Group of 30 meeting in Washington: “It’s a very intelligent way of defending insurance’s long term interests”.

7. The Four Pillars Strategy

Having contributed to the initial awareness of the delicate and very important question of the adaptation of the Welfare State to the conditions of contemporary society, The Geneva Association turned its priorities to other subjects. As usual, when we have suggested some topics some people were wide eyed.

The first project on the four pillars strategy goes back to October 1988. I started from the observation that, apart from a few exceptions, lifespan, in every country in the world, was tending to increase as never before. And in particular this lengthening of life could not be considered a scourge (“society ages”) but rather, in a much more realistic and positive way as the addition of ten or twenty years to an active life, in a reasonable state of good physical and mental health. And so progress for society therefore, passes increasingly through a good integration in the daily life of the vast majority of the population, at least until the 80s. As a consequence there was a need for the whole life cycle to be adequately reconsidered, subject as it inevitably was to a new division of functions and time of learning and work.

This would have to be modulated according to age, starting from a part time basis to full time or more. Part and full time can vary however depending on circumstances and how
society evolves. A century ago, full time could mean 80 hours and more a week. Today one can start from the idea of a working week of 36 to 40 hours. In a service economy, however, we increasingly need to assess non-paid time which for now is not taken into consideration for economic statistics, especially those that compute value.

The Four Pillars comprise: public insurance, private insurance linked to work, individual savings and investments and work (at half time, beyond minimum pension age).

8. The Costs and Organisation of Health

Another very important question is currently the subject of the Geneva Association’s deliberations. It concerns the costs and organisation of health. In an increasingly longer life cycle, it is clear that health costs (which increase to allow us to live better), are very unequally spread over age bands. In other words the “repair cost” of the human body after 50 or 60 years increases considerably. Social justice depends on the dominant political vision in a society. It is also essential that sufficient resources be accumulated throughout life in order to consequently sustain the expenses of the oldest, adding the cost of those who are no longer self-sufficient.

This implies setting up personal and collective reserves (private and public) to deal with the situation, and bringing the health insurance and pension insurance sectors closer together. In certain cases and in certain conditions the two could even be combined. The best solutions can only be found through research and discussion between the interested parties.

One starts from a realistic assessment of health costs, present and future, and from the best policy to follow on economic and social relations between generations.*

9. Insurance’s Own Logic

Kenneth Arrow, Nobel Prize recipient for economics, explained the insurance business in these terms: it’s like going to the bank, with the difference that when you pay money at a counter you can withdraw your capital in line with the terms of deposit, while in the case of insurance, the capital is withdrawn on condition that an event against which you are insured, happens. In English it is a “conditional claim”. Simple, no? On this basis financial economists, and there are many of them, have been wrong in thinking that, since they know everything (or almost) about banks, they do not have much to know about insurance. This is an inadequate view.

To begin with, money withdrawn from an insurance company in the event of an accident is available mainly thanks to the organisation of an insurance scheme which is the function of every insurance company, whether it is a mutual or a proprietary company. It collects premiums from those who are subject to a similar risk in order to pay those who suffer the consequences of the unexpected event.

Secondly, insurance often does not pay a pre-determined cost, but the real expenditures (within certain limits) rising from an accident. So payments are not strictly based on the

* See “Health and Ageing”, www.genevaassociation.org
nominal value of money but on that of the things to be replaced or repaired. In life insurance
too, account is taken – at least in part – of the fact that there must be a guarantee of capital or
long term yield sufficient to ensure real purchasing power in a future that can be very distant.
From this comes the importance, to insurance, of limiting inflation as much as possible.

The rest of the financial world that almost always bases its calculations on the nominal
value of money, aims at earnings that very often are short term. Statistics on a nominal basis
can suffice.

For insurance it would be wiser, perhaps, to make more frequent use of real base statistics
that take account of the purchasing power of money over time.

There is one point on which insurance is really different from the bank and from any other
economic activity: it is the establishment of reserves for paying out on commitments that can
arrive at up to thirty, forty years and beyond.

In the manufacturing industry it is not unusual that a large company can have short term
cash flow problems, even though it is flourishing. Contrarily a technically bankrupt insurance
company, i.e. one with insufficient reserves to meet all its future commitments, can continue
to be in liquidity for 10 or 15 years. In the case of a bankrupt insurance company on which
we created a simulation, a lack of liquidity would be felt only after 17 years.

This situation is practically and psychologically incomprehensible both to a banker and
to an industrialist. It is on this very point that one can find a deep divergence of mentality
between the heads of insurance companies and the others. In insurance one needs to be very
conservative, to defend and protect, as best one can, important reserves for the long term.
Bearing in mind how little knowledge on insurance economics is taught at an institutional
learning level, those in charge in this sector often come to the conclusion that, while publish­ing
explicit financial reports at the end of each year, they shouldn’t overwhelm the appetites
of all the world’s sharks. And there are plenty of sharks.

Every so often, some managers from banks or industry, more casual than others, realise
that insurance possesses reserves managed – fortunately – very conservatively. Then,
notwithstanding the surveillance mechanisms, danger arrives. Over twenty years ago, in
three European countries, Italy, Spain and Norway, some important insurance companies
(La Fondiaria, el Phoenix Espanol and Norden Storebrand) came to harm because some
entrepreneurs thought it opportune to give the insurers lessons on business spirit. In order
to maintain their reserves, companies need an efficacious control system but also – perhaps
most importantly – a spirit and ethics up to the mark.

Concerning this I would like to provoke the reader a little. It is often said that the image
of insurance is generally mediocre. I have had enough experience in many economic sectors
to say that bad habits and reproachable behaviour are pretty widely and evenly distributed
everywhere. Insurance suffers from two handicaps in particular: on the one hand it represents
a sector – forgotten by economics – considered under tow to others and with no great future.
On the other, insurance is easily manipulated by the insured.
In the first case the reality of the modern world should do justice to this reputation. In the second it is interesting to read the book, *The Hidden Bankers* which was released to the public at large with the idea of confirming dubious insurance operations. A number of these do exist, but no more than among car sales companies. The fact is that in seeking out bad actions on the part of insurance this book has brought to light a series of facts that demonstrate how much it has to put up with unjustified requests for regulation (which, of course have repercussions for premiums, something that shows that insurers too would sometimes have an interest in having stricter behaviour).

How many times in a garage, is advantage taken of an insured damage to add other expenses that have nothing to do with the accident.

At least 20% of fires are caused in order to get access to insurance money, without any accident having occurred. This rate varies from country to country, but the phenomenon occurs everywhere, and that does not include those more violent cases or those which come within the area of real crime.

A senior insurance manager must actually spend an important part of his time in studying the statistics relating to damages to find some irregularities that often indicate suspicious behaviour. In some cases at least, one might think that the aggressive approach of some insured persons could be the result of their guilty conscience. This clearly does not make up for the errors that some countries have tried to remedy by setting up an “Ombudsman” service, tasked with objectively assessing claims.

Right from the moment when an insurance policy is purchased the insurer is faced with the problem known to economists as “antiselection” in the area they call “asymmetric information”. It was for this concept and reality that Joseph Stiglitz was awarded the Nobel Prize for economics. What it refers to is as follows. It is tempting for someone who knows he is about to die in two or three years to take out a life insurance policy for his family, hoping that the insurance company will not find out about the expiry. The same applies to someone who would like to insure a car knowing very well that it will break down immediately. The insured person knows the condition of what he wants to cover better than the insurer (hence the expression asymmetric information: one party knows more than the other).

A private insurance company must ensure that every risk covered is done so at a true cost, and not fall into subsidising those who hide the fact that they carry more serious risks than those for which policies are issued. Justice demands that all the insured are treated in the same way. For those who are unaccepted (a seriously ill person who is about to die) there must be some compensation or help from the State or from the community as a whole. In such a case we should all agree to contribute through the tax system but not by means of an insurance policy. In the one case there is a tax levy and in the other a premium. To confuse the two is economically and socially unacceptable.

As can be seen risk and vulnerability management is fairly complex. It deals with all the economic and psychological mechanisms of human behaviour and more generally with everything economists have developed on the subject of “public economics”. This deals
with the economic help and stimuli the basic aspect of which – in the world of insurance – concerns the “moral hazard” or subjective risk of which we have already spoken. The key question is always “How to motivate men and women with economic measures so that their behaviour will allow a better development?” The insurance world is a mine of experience and information on all of this.

10. The Success of Insurance

“They told me that having attended a Polytechnic the last thing I should get into was insurance. They should hear you”. It was Claude Bébéar who expressed himself thus as he offered me coffee in a bar on Rue de Londres in Paris, in the spring of 1974. He had just joined the Geneva Association. I had told him my story because I thought the role of insurance was destined to become increasingly important for the whole of economics. He had begun his career in a small mutual society in Rouen whose head office I had visited near a castle. Shortly afterwards, it took the first steps towards its first merger with “Mutuelles Unies”. Some years later it was the turn of the Drouot group. Later still, the Paris group with “Paternelle” and then “Equitable Life” in New York, and later still UAP, the leading French insurance company, without counting those in Australia, England, the United States and elsewhere. Someone said of him that he was the French and European Napoleon of insurance, with a difference: he had not experienced Waterloo. This is the best demonstration of the fact that insurance could boast its economic success stories like those one reads in books about the epic deeds in coal and steel, railways, chemistry and banks.

Yet, articles written by American and European experts in management continue to explain that most business mergers end in failure. They do not observe what has been happening in world insurance for at least thirty years. They are not used to looking at that area. Claude Bébéar and others – in the Netherlands, in Germany and to an extent in England and Italy – must appear as extraterrestrials to them. They are sustained on the one hand by the position which modern economics opens slightly to insurance, and on the other by the entry of senior managers with increasingly wider vision. Claude Bébéar also sought to oppose the drift that ended in giving rise to the recent large scale financial crises, with a book titled “Ils vont tuer le capitalisme”.* To my great satisfaction in the book’s dedication he recalled our 1974 discussions “in memory of an old complicity”.

When “financial services” are mentioned it is still the bank that is understood first, starting from the idea that in any case banks and insurance would become increasingly alike. It is a superficial view. Today insurance has a big advantage: its business is basically linked to specific and solid characteristics. It is about covering risks through mutuality, the creation of long and very long term reserves, it is a bond with results linked – at least in part – to real costs. Meanwhile the bank’s daily functions are faced with all sorts of possible alternative competition: industrial companies themselves act as banks with commercial cards, pension funds, sales financing. For their part the big stores distribute their credit cards, and post offices in some countries offer themselves as replacements for local banks, and so on. Fortunately banks are supported by a long tradition and by a managerial class that often

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* “They Are Going to Kill Capitalism” (“Ils vont tuer le capitalisme”), Plon, Paris, 2003, with Philippe Manière.
knows well how to fight. But equally often, and increasingly so, they try to create their turn-over as intermediaries leaving as much of the risk as possible in the hands of their customers.

11. Banks and Insurance

For over twenty years now it’s been fashionable to talk of “bankinsurance” or “insurfinance”. There is some truth in these appellations, but also some confusion. First of all it is clear to every entrepreneur that the possibility of strengthening his sales network and distribution is a fundamental concern. Insurance companies, therefore, try to test and to organise distribution with every possible method. New technologies offer opportunities. Sometimes there is even an interest in having various networks within the same group compete with each other to stimulate or to arouse them. In many cases and in many countries banks have become very important insurance distribution networks. Whether they operate in insurance for themselves or for an insurance company they are still dealing in insurance. Yet, some bank savings products are often called insurance when in fact they are nothing but cash bonds with other names. In any case, the question of distribution can only be resolved through practical business in line with the market, followed with maximum pragmatism. Case by case, situation by situation, the best solution is sought.

At a more strategic level there is the question of the construction of large groups where, following a variety of formulae, banks and insurance companies come together, such as ING in the Netherlands or other very important companies, in Germany for example, that work together with the large banks. In this case it shouldn’t be thought that the bank and the insurance company are totally integrated within the overall group.

It would be like imagining that producing pneumatic tyres for cars and pneumatic systems for engines are the same thing, makeable on the same production line. Each to his own specialty and trade. Making a fruit salad does not imply that bananas and pears are the product of the same tree. It is better if bananas and pears are produced in the best way.

Thus bank and insurance products must maintain their own processes and identity, while allowing for specific situations in which they border on each other. But, at the end of the day we need cash, a policy against accidents, life insurance or membership in a pension fund, a mortgage, an investment and so on. Often these financial products are complementary but insurance is insurance and a bank product is a bank product.

The big bank-insurance groups in particular can offer the advantage of forming a large defensive block to better guarantee their independence. But it is not always the case.

Over the last quarter of a century, however, a large change can be observed in the relations between banks and insurance companies, particularly in some European countries. In economic thinking, insurance companies become increasingly important: at one time one could think that banks constituted the centre of the financial world and that insurance was on the periphery. Today one can consider that insurance companies are increasingly the kernel at the heart of the financial system, as tangible signs in at least three or four European countries suggest.
This specific potential growth is revealed in another way. For a long time banks have enjoyed the services of the Central Bank as “lender of last resort”. For insurance companies, the insurer or the reinsurer of last resort is not the Central Bank at all, but the State itself and the other public institutions. This is an enormous difference.

When in the financial system one speaks about systemic risk it means the danger of a rush to the bank counters that end up being unable to satisfy the cash requests. It is financial panic.

There is none of this in insurance, they tell us, one can only turn to this when an accident happens and so there is no rush to the counters. Panic occurrences are much smaller.

However rightly, insurance is different because it can become insolvent in another way. The example of September 11 is there to remind us of this. Tens and tens of billions of dollars had to be paid, perhaps a third of all the world reserves held by insurance companies in the sector. For this time they should be enough, but what about later?

The reserves built up against long term risks might also make economists rethink the reasoning behind the strict tax system’s adherence to annual periods. Insurance companies sometimes obtain dispensations on taxes relating to the risks of long term catastrophes (they are called stabilisation reserves). Why “dispensations”? It is the very principle of tax regimes set up at the time of the agricultural economy – with an annual rhythm – that should be rethought in a service economy in which the economic value of the result is distributed over variables, and sometimes over a long period of time.

Finally as far as the question of business integration is concerned the attention of the economists should again be drawn to three important points.

Insurance (private) is a strange institution that cannot exist in a centralised economy regime (such as in popular socialism): in that situation it is totally absorbed into the tax system (if there is one). Under Stalin cars could be built in one or two factories, but there could be absolutely no private insurance companies. On the other hand insurance is an expression of economic solidarity between individuals or institutions subject to the same type of risk. In other words, insurance is a good indicator of the level of freedom and possible economic solidarity (on the other hand even right wing dictatorships sometimes tend to nationalise insurance).

12. The Benefits of Competition

Notwithstanding the tendency towards integration, insurance cannot and must not reach an integration of the industrial type. There is no place for a company like IBM, or of the builders of aircraft or even cars. This is for various reasons, apart from those linked to the diversity of local markets. It is preferable for the sector as a whole that the cover against risks should not concern every company in the same way, with the risk of sinking the whole profession. The multiplicity of insurance companies is a guarantee of flexibility in the sector. Research into the rationality of management through mergers reveals much greater limits in the insurance sector than in the traditional industrial sector.
If there is competition between insurance companies the distribution of risks within the world insurance system is a key consideration. This can be checked horizontally, with companies of the same level, or vertically through reinsurance. Let us consider the following point: it is better to cover 10 different small risks than one big risk whose cost is equal to the total of all ten. Or the big one is distributed among various reinsurance companies. It is a kind of oligopoly that generally is not studied in economics and that has the effect of improving insurance provision, of making it more flexible, versatile, at worst less expensive and in any event more efficacious. Here we have another economic topic through which insurance pushes innovation.

13. Social Democracy has Triumphed

At the time of the Industrial Revolution, which we still widely experience at the economic, psychological level and also because of cultural laziness, one of the key politico-social questions was that of the division of business between the public and the private sectors. Today it can be said that last century saw the triumph of social democracy. Whether in the United States or in Sweden, the State represents, takes, manages from over a third to more than half of all economic activity. In any event it is the largest entrepreneur even in those countries that, more than others, favours the market economy. The only, sometimes fairly important, differences lie in the intensity of the phenomenon, not in its quality.

When I taught courses in economics at the University, about 50 years ago, they told me for example that there were economic activities that could not be assimilated into the public services (the production of electricity, transport, post and telecommunications etc.) that fell naturally into the remit of the State. These were referred to as “public utilities”. Today a large number of these services are open to private enterprise and the debate revolves around the determination of new lines of division in every sector. Whatever the case, it is enough to look at the tax percentage of every State and its evolution over a century and after the end of the Second World War to confirm that social democracy has really triumphed, even if it is often defined as “liberal”.

In a service economy such as the one we have described, the criteria for division between public and private are subject to changes that prove important. First of all, in a complex society, the need to regulate business is often the consequence of practical obligations rather than of an ideological choice: if there are no cars there is no need for traffic lights at crossroads. When there is no pharmaceutical industry, as was the case some centuries ago, institutions for regulating the production and use of pharmaceuticals serve no purpose. Trains should have timetables and aeroplanes must take pre-established routes and be monitored in flight.

Given that in a service economy and society it is always necessary to know how to face risks, manage uncertainties and guarantee results, there is another criterion that plays, and will play, an increasingly greater role in the division between public and private affairs. It is that of insurability.
14. The Insurability Criterion

That the risk management and private insurance sector can offer to cover every risk at every level is out of the question. They can only cover some risks, of various types, for which they are able to collect premiums and to carry out their role of organisers of insurance schemes among like-minded groups and institutions around the same class of risk. When an event occurs that is too serious (a nuclear explosion, the sudden spread of a deadly pandemic among millions of people) it would never be possible to collect sufficient premiums. At that point it is the State, at its various levels, which, by necessity is solidarity’s last resort. The State does not collect premiums, but taxes that must also fulfil the function of redistribution and social justice.

On the other hand, the State would become totally ineffectual if it had to cover every risk. In this case it would practically have to confiscate close to 100% of earnings through taxation. And we would then fall back into the experiences of the so called centralised economies, with free enterprise extremely reduced.

The more developed States (and the others even more) struggle to find a satisfactory balance between income and expenditure. It is certainly in their interests (and in those of society as a whole) to limit their obligations to the indispensable, i.e. to non-insurable risks. There are always plenty of these. And it is necessary to make use of a risk management industry and of effective insurance so that, within the limits of insurable risks this can carry out a role that places it at a strategic point in the modern economy. Risks to persons, life risks, business risks, environmental risks, risk of accidents and many others. Acts of God remain unforeseen and as such are insurable unless they are really catastrophic – and we can always face them better by managing our lives, aiming at an increasingly better accomplishment as individuals and as a society. The separation of tasks between the private and State sectors in this field is a key aspect of the economic future.

Insurability therefore is a criterion that has an important place in the division between the public and private sectors, one that underlines the complementarity of these two sectors. Everything insurable can be private, everything that is not can only be dealt with by the State, or should it be found lacking, by society as a whole.

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The reader might think that when I began to work for the Geneva Association, I had a certain number of ideas and that I wanted to realise them. It is not exactly the case. I had some hypotheses to test. It is necessary to have some in every undertaking be it cultural or industrial. Ideas put forward as hypotheses only have a value because they are compared to reality and put to test. If they come back improved, on the one hand we will have established our deficiencies, but on the other we will have won. This is why real fundamental research must be free. Every idea or knowledge hidden in a drawer decays and deteriorates. It must be let out into the open air. It is a little different for licenses or patents in applied research: there has to be a good balance between spreading the outcomes and the need to pay for, often expensive, programmes. Even researchers need a salary or remuneration.
From the start of the Geneva Association’s activities’, I didn’t begin to express my ideas as explicitly as in this book. I used those ideas as reference points to suggest to researchers and experts that they should discuss their experiences.

Ever since 1977 the Geneva Association has organised an annual conference for the great economists, many of them Nobel Prize recipients, so that they could offer their opinions on risks, social welfare, insurance: from Kenneth Arrow to Joseph Stiglitz, from Edmond Malinvaud to Robert Merton. A special series of Geneva Papers (The Geneva Papers on Risk and Insurance Theory) is being published for almost ten years and run by a group of highly qualified economists that examines risk and uncertainty from the point of view of the most advanced economic theory. Study grants to students preparing their theses, specialised seminars (one or two a year), investigations into the teaching of risk and insurance in Universities completed this programme. I am convinced that it will actually be the analysis of the contemporary economy as service economy that will supply a decisive stimulus. I could be wrong. We will see. In any case it is wise to explore all possible paths.

15. Performance Over Time

Another very important aspect of the modern world is found in the link between law and economics. There are associations of professors in the United States and Europe which have specialised in this border zone and with whom the Geneva Association has often collaborated. The explosion of questions concerning liability over recent years appears to me to confirm the rightness of the point of view that underlines the nature of the service economy. In fact, if economic value is increasingly linked to the result over time, then civil, and even penal, responsibility, product responsibility (sanctioned by Brussels directives) and all the precautionary directions and expiry dates on all the products we buy, are effectively an indication of the fact that the key to the economic value of the outcome really is linked to the “performance” or result.

Finally I will mention, among others, the initiatives on the theme of analysis of risks on the part of engineers (the MORE programme – Management of Risk in Engineering), the studies on the cost of fires in the world (which on average represents 1% of national revenue) and finally the support programme at the Product Life Institute. In the Service Economy field this institute has for years been carrying out studies to optimise the life span of products and systems, taking account of utilisation costs and the costs of waste treatment or recycling. This question is linked to the definition of responsibility for product performance.

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In twenty eight years of activity (from 1973 till 2001), the Geneva Association organised 180 seminars or conferences for a total of almost 6,500 participants. More than a thousand experts from industry, financial services, research centres and public institutions collaborated with detailed interviews and articles. Permanent contact has been maintained with about a hundred Universities, while several hundreds more have been in less regular contact.

* See Geneva association website
The Geneva Association

As to publications, a hundred issues of the “Geneva Papers” have come out as have twenty four of the theoretical version. There have also been 240 “Studies and dossiers” and about 520 Information Letters in various research sectors. The Association’s staff and president have given around 330 lectures. Account should be taken of the fact that at the beginning the structure was based on a single full time person (three after a few years, including a secretary), and on a widespread appeal to external collaborators on a case by case basis, though some of these offered their contribution over several years. This was the case with Tom Wilmore for the estimations and statistics on the costs of fires (with the cooperation of the United Nations) and with Julian Arkell, a great specialist in services and negotiations at GATT and later at the WTO – World Trade Organisation.

When the Geneva Association was founded it had a little over a dozen members. Over two decades the number had grown to around 80. They are all CEOs of the most important insurance companies in the world. After confining itself to Europe for 5 or 6 years, the Association was opened up to the United States and the rest of the planet. There are now members in every continent, Asia included (Japan and China).

It should be noted that members are such in a private capacity, something that underlines the nature of the Geneva Association as a research tool for long term strategy and without any “political” mandate.

The members meet once a year and form the most prestigious Assembly, in terms of numbers and quality, of world insurance. Of course there is an Administration Council which oversees and checks the activities of the Secretary General. Raymond Barre added lustre to this Council as President during the first three years. Fabio Padoa, who was Managing Director of the Generali Group succeeded him for seven years. As has already been mentioned he was the principal inspiration behind the Association, convinced that it should play an increasingly important role in society. Without him the Association would probably never have seen the light of day. I would be lying if I didn’t say that I know I gave him grounds for satisfaction – he wrote of it to me – which rewarded him for his wise insights.

After him came Julius Neave, then CEO of the largest English reinsurance company, Mercantile and General (today part of the Swiss RE group). I owe him a great deal for his practical support and his style, in the best English tradition. Julius Neave, like the president who succeeded him, was one of the group of founding fathers of the Association who felt personally committed to this adventure. The fourth president, Reiner Schmidt was the CEO of the Aachener & Münchener group (which is now part of the Generali group). It is of great satisfaction to me that we became best of friends based on deep mutual respect and on his human qualities. He was precise and scrupulous, very seriously committed to his post, as can often be expected of a German. He also had the human side of someone who made an enormous effort to survive, to go to University (twice becoming professor, once with an honorary degree), find work and finally find success in his career, after having been at the forefront during the Second World War and having come back from it in very difficult conditions. He had an enormous passion for books and was active in writing texts on insurance till the age of 80.
Brian Corby of the English “Prudential”, Jan Holsboer of ING in the Netherlands and Walter Kielholz, CEO of the Swiss Regroup in Zurich, the second reinsurer in the world, all subsequently brought their contribution, their experience and their vision to the Association until 2000.

It is not possible here to remember all my friends from various parts of the world who gave me their support with their advice, suggestions, the availability of their collaborators in organising the general assemblies and the many seminars. I would like to mention a few of them however for their tokens of friendship and concrete help, offered at critical moments. Among these was Georges Martin, CEO of Royale Belge (now part of the AXA group), a man of exceptional wisdom and rectitude, John Roberts, President of AIG (of the American Insurance Underwriters group whose life would make a good novel, and who combined a strong personality with a very American attitude of instinctive support for new adventures. Then there is Bjorn Wolrath, CEO of the Skandia group of Stockholm, who always ensured that I had the permanent cooperation of the four Nordic countries. I have already mentioned Claude Bèbèar and I will again mention Joao Talone who brought together the most important resources of the Portuguese financial services before taking the plunge at the European level, with a notable strategic vision. Lastly I apologise to all the others: thanking everyone would require a whole book.

Whatever one does in life one must have good luck to bring things to a good conclusion. Luck was with me at the Geneva Association until, and above all at the end of my work as Secretary General as I prepared for my “retirement” (partial, as it should be).

Thanks to Ricardo Diez Hochleitner, former President of the Club of Rome, to whom I had suggested that I write a report on “employment in the service economy”,* I had obtained a little financing from a Bilbao bank that wanted to celebrate the anniversary of its founding. I needed that financial help to find a collaborator capable of pulling my notes together, completing them and adding the results of his research. It was 1996.

I found him in the person of Patrick Liedtke, who also edited the Spanish and German versions. The latter was named in the German bestsellers in economics list in Germany.

Someone once wrote that there is no success without a successor. Well it happened in the best possible way. Liedtke has shown that he could improve on all that I had undertaken and accomplished. He has done that and more. It was a real stroke of luck for me, for the Geneva Association and, I hope, for him too. As Peccei used to say, “In life what counts is the human quality”.

Chapter 8

The Fourth Pillar:
To the Conquest of 15 Years of Life

For about twenty years now the concept of human capital has become increasingly popular among economists. It is about time!

By human capital we mean the fact that every human being is the depository of personal capital made up of experience, knowledge, intelligence and spirit. It is the first of the resources. It is the starting point of all that we call the civilisation process, despite the fact that this is a long way from reaching an acceptable level. It is the principal factor of economic, artistic, technological, scientific and social production.

In this very broad sense, we are all capitalists, more or less endowed. And it can be extrapolated that this human capital is what drove primitive man to sharpen a stone into a knife, then light fire and subsequently to invent the wheel. The violin, the aeroplane and telecommunications followed through a long series of civilisation and art forms. Moments of crisis like wars or natural disasters and those caused by our own species are not to be forgotten. So far, however, we have always picked ourselves up.

During the Industrial Revolution a particular form of capital came to light, the one represented by the accumulation of money. The origin of this phenomenon is easy to understand: man during the Industrial Revolution had to spend increasingly more time making tools in order to make his economic activities more efficacious. It required little to make primitive bows and arrows, whereas the construction of a railway engine took more time. A “logistic” problem arises: one cannot consume tools; however, those who produce them must survive just the same. So it was necessary to take or save a part of consumption so that the whole system can function. Money was indispensable to the operation of these transfers. Savings in the form of money became investment “capital” for the production of equipment.

The concept of human capital once again and implicitly suggests the idea of the human value of economic activity, as defined by Adam Smith, the founder of the first coherent theory of economics, more than two centuries ago.

Today monetary capital is subject to economic evolution. During the golden age of the Industrial Revolution the essential thing was the organisation of productive investment. Today in an economy dominated by service activity, savings are increasingly used for dealing with “maintenance and repair” costs, for paying health expenses, pensions, for accidents and natural and human risks. We are speaking of reserves accumulated by a great variety of
insurance and welfare institutions, both public and private. The reference point for the utilisation of monetary capital is no longer only investment in production goods, but increasingly in “maintenance” activities, based on future expenses for more or less probable occurrences.

But let us return to human beings, to the capital that we represent both individually and collectively. Fundamentally then, we all start as capitalists. The big question is knowing whether this capital has opportunities for development, for enrichment. Human capital can be open to different forms and conditions. It can even be badly used, whether because of suffocating social obligations or of our lack of will.

There exists a kind of waste of human capital which is this book’s ambition to denounce and it is the one that even today too often relegates the whole population between 60 and 65 and the 80s into the “old” category. It is a blatant waste that, taking into account the changes in people’s life cycles, must no longer be tolerated.

These are the reasons for the plea made in the next chapter in the form of an open letter so that the behaviour might change. We are dealing with a double battle. On the one hand, and in the great majority of cases, the society in which we live is organised in daily experience and in its psychological reactions in accordance with old habits that place the over sixty fives among the “old”, i.e. those people who are “out of the loop”. We are being told repeatedly for decades that at 65 years of age we are “old” and we are often tempted to believe it.

Subjected to this pressure we are sometimes at risk of accepting this role of “old” that is based in effect on social prejudices but which coincides increasingly less with our potential, with the real value of our human capital. Of course it is not always easy and things do not function automatically. It is necessary to accept a certain decrease in strength and physical vigour, but is a 30 year old tennis player perhaps “old” because he no longer manages to win tournaments against a young eighteen year old opponent? This is why, making the most of the possibilities offered by modern society and economy, founded on service activity, it is essential that partial or part time work be considered the true basis for employment.

If the very young often make mistakes due to inexperience, older people must be absolutely capable of ridding themselves of every temptation towards errors due to an “excess of experience”. We are speaking of all those cases in which so-called experience is used as an excuse for not listening to or taking into consideration other perspectives. We must always know how to choose: the horse drawn carriage works very well, and so does the Venice gondola and both must be preserved, but not to the point of disapproving other forms of transport. We must take the opportunity offered by new computers to have the young explain how they work, an excellent opportunity for creating a dialogue of trust between generations and for making us feel more “productive”.

One day, twenty five years ago, I was waiting at the bus stop behind which there was a sailing school. In the window there was a placard that read “Learn to sail – immediately!” The bus was not in sight and so I entered. Why not, after all. And I enrolled. Frankly I had not expected that, at the first lesson, all the other pupils would be under sixteen years of age. They were a little astonished but proud of carrying out the manoeuvres more quickly than me.
Itinerary to the Third Age: The Fourth Pillar: To the Conquest of 15 Years of Life

A little slow, the “oldie”. But, so what? I was proud of having challenged a habit and an attitude without thinking about it. A small amused smile compensated for my lack of elasticity.

I passed the final exam brilliantly, despite the fact that horrible weather on the lake had not allowed the policeman to board the boat. I carried out all the manoeuvres correctly and calmly.

Let us learn, therefore, in mature age, to jettison certain experiences or certain acquired attitudes that, like a ballast, block all our possible progress. The young too must learn. Let us together, then, make the most of our opportunities. It is up to us to accept, within our acknowledged limits, all the opportunities open to us. And let us begin by adapting the means of learning to our needs. For example by exploring the possibilities of the “Double Helix”.

1. The “Double Helix”

The first part of this chapter concentrates on the necessity for a profound change of behaviour in relation to the age bands of the over sixty-sixty-five year olds.

The next paragraphs are devoted to a series of propositions that reassert the contents of two books to which I contributed. The first, already mentioned, written with Patrick Liedtke, on *Full Employment in the Service Economy* (Economica: Paris, 2000) and *La Doppia Elica* just finished in English with the principal contribution of Mircea Malitza of the Club of Rome, who recently celebrated his 82nd birthday.

The image of the Double Helix relates to the DNA structure, the constituent biological element of living beings. We use it here to underline the growing interaction in our lives between productive activity (such as work) and education (learning and training). However, it must be stressed that while the genetic helix is an unchanging datum for every individual, the double helix of learning and practice is in a permanent state of construction and is subject to numerous modifications in its orientation.

A true story will help the reader to understand better. Jean is the son of a seaman, born and raised to adolescence on the French Atlantic coast. The family vocation is so strong that at the age of 16, after attending compulsory schooling from ages 6-14, followed by two years of technical schooling, Jean starts embarking on a fishing smack. At sea for two years, he works and learns everything concerning mechanical plants and the operation of the sails.

At 18, he goes back to school, completes secondary school and follows a short course in fishery culture. Three years later, he obtains a job in an aquaculture company where he remains for three years. He then enrols in a marine biology school and studies for two years. Between the ages of 26 and 30 he works for a government marine ecology institute and completes his university studies. His experience allows him to work for five years in a research institute, and then to crown it all he spends two years studying for a doctorate degree.

At 40 years of age Jean begins to teach in a school where he also has the opportunity to follow a course on the economics of fishery culture for a year. Over the following five years

*The Double Helix of Learning and Work UNESCO CEPES, Bucharest, 2003.*
he works as a consultant for a sea-products business. He leaves that to set up his own business and devotes himself to the study of museums until he becomes the head of an aquarium from the age of 55 to 60. A developing country asks him to set up a similar institution to which he then devotes himself for two more years. This experience persuades him to study the economics of developing countries and for a year he works as a government consultant on sustainable development. At the age of 65 he becomes an Associate Professor in an important university in his own country. Then he works as a volunteer on various development projects for a non-governmental organisation. From 71 to 75 he is President of a foundation that deals with the same kind of projects. Finally he becomes department President of an oceanography academy.

Here then is a path of 60 years of active life. Jean has changed the orientation of his activity over the last twenty years. He has carried out to their conclusion seven different types of education; he has changed work thirteen times, in a total of 48 years. He has also been a volunteer. Where is it ever possible to find references to journeys of this kind in employment mobility statistics? Or in those that relate to education?

Of course here we are dealing with a privileged case. However, a good part of the privilege derives from Jean’s own will to fully make the most of his personal capital and to develop it. It must also be admitted, however, that the key to his case lies essentially in the interconnection of work and education. Moreover, length of the life cycle permitted Jean to see the link that is created between him and the evolution of the whole society. A society which, by offering twenty more years of active life, allows individuals to be fulfilled and the social body to be better organised. Here is a direction for economic and social policies to follow, so that this transition, in the midst of which we already find ourselves, is not transformed into confusion, instead of highlighting the enormous source of human capital that it is possible to realise.

2. Part Time Work

At this point it will be a little better to understand perhaps why the concept and the practice of part-time work form a key reference point for the organisation of an active life that can keep us occupied for 40 to 60 years and even more.

Starting from 60 years of age, with an average life expectancy of twenty years, it should be clear to all that it is necessary to ensure that one has a minimum of paid work, as a resource that is complementary to one’s other income, including pensions. Maintaining a “productive”, not necessarily paid, activity that gives results for oneself and/or others constitutes, in any case, a contribution to the creation of well-being and wealth in a service economy. It represents a key factor in preserving good physical and mental health, and this can never be enough. Full Employment in the Service Economy sets out these arguments in detail.

Bearing the “double helix” perspective in mind, we will concentrate, in the following chapters, on the great debate that has been going on for at least thirty years concerning the concept and modality of lifelong education. It began from an old conception according to which life was organised into completely separate and distinct sectors: first a period of ten to
eighteen years of education institutionalised through schools and universities, followed by a period of thirty to forty years of work and then by a “pension”, that less than a century ago left little available time to enjoy it, taking into account mortality rates.

This pattern was undermined not only by the lengthening of the lifespan of each person, but also by the rhythm of the evolution of society and by the increase in knowledge, the whole process crowned by the mushrooming of means of communication.

Some people love to say that we are slaves to technology. Technology, however, works only if it is we who want to adopt it and use it. Let us think of the invention of the piano. Beethoven would never have been able to compose his music on a spinet or on a guitar. Technology opened up a new horizon to him and allowed him to create his masterpieces. Let us then grasp the new technologies with a positive attitude, be open to the new Leonardo da Vincis, the new Beethovens who could have a stroke of genius, thanks to the new possibilities.

In the field of information and teaching the new technologies have probably opened up the way to the greatest and most useful innovations, for a vast public, particularly when it comes to the “double helix”. Whether one works or studies the tools are increasingly the same. Thanks to computers, students do not necessarily go to school or workers, to the factory. The workplace and the place of study tend to merge with life’s places.

It is true that scholastic institutions have, or should have, as their principal purpose that of educating the populace endowed with their own independent opinion. For this very reason they must know how to apply their faculties for judging the reality of the world of work in the broad sense. Scholastic education becomes very conservative if it thinks of maintaining an exclusion zone without being widely open to “practical” experience (known as “empirical”). Under this aspect the education supplied by business is often a lot less part time than is said.

About thirty years ago, in Japan, I visited a training school belonging to a very large video and television corporation. I expected to find highly specialised programmes, whereas more than half of them included courses in geography, history and world-level culture. This hardly corresponded to the image I had in mind which can be seen in hurriedly written articles. As a matter of fact the person in charge of this course told me, it is more important to have colleagues with a good basic training than with a highly specialised one. They will certainly be the first to be able to adapt more easily to technological changes.

Little by little democracy makes progress in business without it being mentioned. The growing levels of information and especially the education of every colleague gives them increasingly greater margins of autonomy. I was able to observe it well in the chemical industry. The more the necessity for knowledge increases at all levels the more the number of simple “performers” falls as they become real and indispensable contributors. There is certainly a long way to go, but the way is open and the prospects are good, so long as advantage is properly taken of every practical and theoretical possibility.

In the case of the “double helix” there is a battle to be fought on another very delicate front, the one relating to education based on discipline against an education that takes account
mainly of the problems to be solved. At the moment a problem of any kind is encountered, recourse is always made to interdisciplinary solutions. In the construction of a house, foundations are needed as are water pipes, electricity cables, windows, bathrooms, bedrooms and hundreds of other different things. No single part of it would be of use if it is not taken together: a pipe or a cable in a wall, a wall on a floor, paint on a ceiling etc. So nothing new there, except that traditional education too often favours academic teaching by discipline and leaves to “practice” the integration of the various parts.

The supporters of academic teaching are at least partly right, when they proclaim the necessity of knowing a thing in depth. There is a danger of being superficial and this is why specialties exist and why they multiply in the fields of technology and in judicial matters. But starting from a specialty, and thinking of Jean’s case, one understands still better the necessity for, and the possibility for successive stages of education in which different paths open up like in a game of dominos. In this, one half of a piece has, for example, the number 5, but the other half can be a 3 or a 7. Education is like a tree whose branches grow in different directions; each of us follows the branches that offer him the best prospects.

Having said the above, the fact is that interdisciplinarity has been spoken of for decades but, especially when it comes to educational institutions the term rarely matches the facts. In the case particularly of a certain number of disciplines barriers continue to be erected and in the end these block the possibility of judging and of doing better.

This is why, in the “double helix” proposal a “module” education system is suggested. These modules would integrate specific knowledge of every aspect of a question with the solution to the problem. These modules should, of course, make the greatest use of the computer technology and communication revolution, and be easily accessed from the workplace, home or school. Some progress in this direction can already be seen, though sometimes slower. Twenty five years ago, I had the idea of having my students listen to some video conferences held by important economists in order to give them some reference points different from those I was able to give. I had to obtain the videos and even carry my own television set into the classroom. I was in no way offended to realise that some economists knew how to say things better than I did, or even that they expressed very different points of view. I helped my students to understand and I helped myself.

Another important point concerning education is that of keeping up to date. For certain disciplines or certain teaching, a diploma should be valid for a limited time, subject to being renewed through set procedures. How does one remain up-to-date in the jungle of information that arrives in great quantities and that must be understood, sifted, and utilised advisedly? Nothing is more important than the provision of appropriate and suitable selection systems.

Let us return to who “are or will be 65 years of age”. It is precisely the new technologies that can help us keep up-to-date in relation to the “double helix”. Maybe we have more need of it than others. We can set an example of humility and character involving the young so that they can help us understand what is, after all, also very entertaining. It takes a little effort at the beginning, but technology can and must be dominated. While waiting to become Beetho-
vens of communication for which there are, in any case, a load of valid experiences to show. And we, we can create and suggest education modules in line with our abilities, to make the “double helix” work as it should, between the ages of 65 and 80.

3. An Act of Social Conquest

In the open letter that is the next chapter I will seek to trace the principal points concerning the Welfare Society which anticipates the integration or reintegration of all those who are 65 years of age into productive activity at least till the age of 80. It is a question of progress and social conquest which is translated into the creation of a fourth pillar alongside the other three.

Young and Old People: Representative Inversion

Graph 1: Evolution of the mass of people of 20 years of age and of 60 & over Vs. Evolution of the proportions of people of less than 20 years of age & of 60 & over in the European Union


This fourth pillar is founded on part time work, at least a part of which must be directly or indirectly paid while a part can be of the voluntary kind. In the latter case, we repeat, the economic value of numerous unpaid or free activities that in a service economy, are
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indispensable to the good development of the whole economy and society, should be recognised.

At the Geneva Association, from 1988, a series of studies, conferences and publications were organised on the “Four Pillars”. The documentation relating to this research programme, including the book (in English) “Gradual Retirement”, is available on request.

In order to take a glance at a few figures, we include some significant tables from one of these publications, *The Future of Pensions and Retirement, 10 Key Questions*.

The United Nations provide other projections that confirm these tendencies.

I will spare the reader other statistics on the subject; they are thick on the ground and more often than not they serve only to spread alarm on “population ageing”.

This is all a false alarm as I continue to stress in the next chapter too.

*Table 1: Population projections of the over-seventies as a percentage of the total population*

<table>
<thead>
<tr>
<th>Countries</th>
<th>2000</th>
<th>2020</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>22.9</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>Austria</td>
<td>20.4</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td>Belgium</td>
<td>22.1</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>Denmark</td>
<td>19.9</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>Spain</td>
<td>21.8</td>
<td>28</td>
<td>44</td>
</tr>
<tr>
<td>Finland</td>
<td>19.8</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>Greece</td>
<td>23.2</td>
<td>29</td>
<td>41</td>
</tr>
<tr>
<td>Ireland</td>
<td>15.8</td>
<td>24</td>
<td>39</td>
</tr>
<tr>
<td>Italy</td>
<td>24.0</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>19.6</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>Netherlands</td>
<td>18.5</td>
<td>29</td>
<td>37</td>
</tr>
<tr>
<td>Portugal</td>
<td>20.9</td>
<td>26</td>
<td>38</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>20.7</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td>Sweden</td>
<td>22.2</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Switzerland</td>
<td>20.2</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td><strong>EU 15</strong></td>
<td><strong>21.8</strong></td>
<td><strong>29</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

*Source: Eurostat and Official Federal Swiss Statistics*
Often these figures are also presented to show another idea, whose perspective is not correct: the one according to which the “old” industrialised world will be invaded by the young people of the third world. In reality the phenomenon of the lengthening of life expectancy is a phenomenon of universal tendency with few exceptions. The devastation caused by economic crises, hunger and plagues such as AIDS has effects that are globally limited and – at least so it is hoped – increasingly contained thanks to provisions that are put in place too slowly.

Graph 2 shows that the band of people over sixty and over seventy five has already begun to increase more than proportionally even in the developing countries.

*Graph 2: The band of elderly people in the population of the developing countries*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>163.7</td>
<td>11.9</td>
<td>15.1</td>
</tr>
<tr>
<td>France</td>
<td>46.1</td>
<td>-1.3</td>
<td>-7.6</td>
</tr>
<tr>
<td>Germany</td>
<td>29.5</td>
<td>-15.1</td>
<td>-28.5</td>
</tr>
<tr>
<td>Italy</td>
<td>41.3</td>
<td>19.0</td>
<td>-41.2</td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td><strong>11.05</strong></td>
<td><strong>-15.8</strong></td>
<td><strong>-34.4</strong></td>
</tr>
<tr>
<td>Gran Bretagna</td>
<td>16.9</td>
<td>-8.7</td>
<td>-12.2</td>
</tr>
<tr>
<td>Stati Uniti</td>
<td>89.2</td>
<td>18.9</td>
<td>28.4</td>
</tr>
<tr>
<td>Europe (47 countries)</td>
<td>48.3</td>
<td>-9.2</td>
<td>-27.6</td>
</tr>
</tbody>
</table>

Source: UN (2000)
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Whole books and infinite reports reveal the serious problem of financing pensions in Europe and the rest of the world. In the Geneva Association study mentioned above, Alan Walker of Sheffield University writes: “In fact, in Europe the principal problem for financing pensions is not so much about population ageing so much as the togetherness of low birth rates, the employment structure and pension practice. Over twenty years or so it has been observed that the young entered into the job market increasingly later because of longer studies, and that workers, willingly or not, retired increasingly younger. It could be said therefore that Europe had almost doubled the number of pension years while reducing the number of contributions by about 25%.”

Let there be no mistake. The project for an active life between the ages of 65 and 80 is not an obligation imposed by financial problems, though they remain important. Active life after the age of 60 is an act of social conquest. It represents an opportunity to considerably improve life expectancy and the quality of life. In Alan Walker’s comment we can see how much the organisation and the practice of education need to be reviewed, probably towards the “double helix”, in any event in a way that avoids compulsory lay-offs.

The battle is not primarily one of technology or economics, but rather it is essentially cultural, and the way is rife with hidden dangers.

As can be read in the book on the “double helix” it is often said that older workers are too much of a burden on dynamic businesses that want to adapt quickly to changeable market conditions. However, the studies that state the opposite are growing in number. Often older workers feel implicitly discriminated against, which still happens to women. As a result it is not rare to see how women and the “elderly” intensify their efforts to be better, and they succeed in doing so.

Here is a comment from an American company that makes room for older workers: “They have experience, they can be trusted, they work hard and conscientiously, they are more flexible than their younger colleagues when their tasks are changed”.

A four pillar strategy for those over 65 years of age (maybe even 60) must also lower their wages. In Switzerland, for example, there are no longer second pillar contributions to pay and those of the first are considerably reduced. The salary too, being complimentary, cannot reasonably be compared to the last amount obtained before the introduction of the 4 pillars system. On the other hand taxes are paid on the total income, something that is equally reasonable. And even the 65 year old worker, having between 15 and 20 years of active life ahead of him can give up a part of the income from the first two pillars, or accumulate them for a later time. The essential point is that a real fourth pillar be preserved that will allow him to remain active and take part in society, and that it constitutes the best guarantee of his long term financial stability, thus avoiding the arrival of the day in which he is no longer capable of doing anything.

The 4 pillar strategy also implies that we, the interested, should know how to be organised.

* www.genevaassociation.org research program on the Four Pillars
The “third age” organisations do not do enough to prepare an active and productive life for the over sixties and sixty-fives.

In the United States there is an Association of Retired Persons (AARP) which has over a million members. With a fee of ten dollars per person the available budget is good.

4. Between Geneva and Trieste

In 2001, the time came to check how to put into practice my projects for the over sixties.

So, I began a long period of shuttling between Geneva (where I am a permanent resident) and Trieste: a couple of years of half-time work and then as special consultant for the Geneva Association. My successor got on more than well, so I decided to make some forays into my native city, that moaned (and moans still) about having the “oldest” members still working and this is explained by the fact that one can become a member at 55. In any case it is already a readymade bridge to ease the way to an active life.

Again in the United States, ANSA (Alliance of New Stage Adults), another organisation, was founded recently. It is intended to facilitate the search for a new career for all those who have a level of management skills and want to stay active. The objective is set in particular by the 17.5 “baby boomers who will be 60 years of age between 2007 and 2011”. Part time is preferred even though after the age of 55 one can easily work full time and even more.

Perhaps one day there will be headhunters specialising in skilled staff who are 60 years of age and older. Or again, we will read job offers for part time jobs for adults of 60-65 years of age, especially in important sectors such as education, care, travel, culture (including museum staff), communication, journalism and many others. In France there are almost a million grandmothers who take care of the grandchildren part time. Men too can put themselves to work and the State could consider a way of promoting this activity that offers an alternative to day nurseries.

Of course those who are (or will be) 65 have to prepare ahead, making a little effort to adopt the “double helix”. It’s worth it to get to the conquest of 15 years, no?

Given the extension of the lengthening of the life cycle to a good part of the planet, I sought to suggest the idea that this de facto situation was an advantage, from which to draw ideas, suggest research and studies, and to identify policies and activities for the future of welfare. Trieste could become a key reference point in Europe and the world, also taking into account its research centres, university, its insurance tradition and various other institutions.

I began by organising a Geneva Association conference in Trieste on “Health, Lengthening of the Life Cycle, Work: Strategies for the New Welfare in Europe” from 21-23 October, 2004. Over 50 speakers from about twenty countries contributed, among them many from Eastern Europe, and over 100 participants. The European welfare policy was discussed, especially on the 23rd at Duino Castle. The Central European Initiative, the Club of Rome and “Generali” also contributed, the whole under the auspices of the Friuli Venezia Giulio Region.
This led to the founding of the journal “European Papers on the New Welfare – the counter-ageing society” in English and Italian.

The first issues in May and June 2005 fully report the content of the Trieste conference. In October 2009 Number 13 came out in English. They are all available on www.newwelfare.org.

I remember a lunch in Grenoble in 1975 with Raymond Barre who summed up his life cycle thus: a long period of preparation, then of war. Then came the honours. At that time he had not yet become Prime Minister, and of honours he had lots. And I, few, as is only right, but in 2006, in Chicago I was inducted into the International Insurance Society Hall of fame (www.insurancehalloffame.org.), which for over 50 years has rewarded those who it considers to have made an important contribution to world insurance. I am one of three Italians on the list. It gives me pleasure. Some of those who have been recognised have clearly done more than I have. However, with it I at least pay back the trust that in 1972, Fabio Padoa, then CEO of Generali, placed in me by proposing me as Secretary General of the Geneva Association. And since the Americans sometimes do things big time, a portrait of me, painted by a Trieste painter, Rosignano, hangs in a New York gallery.

Trieste is a city that depends on the sea and the hinterland. Though it has an ancient history its glory days go back to when this hinterland was constituted by the Austro-Hungarian Empire, and as such it extended beyond Vienna, particularly from the end of the 1700s. Then, the wars and the iron curtain.

Today it seems clear to me that Europe is the true hinterland for Trieste. A Europe which at the beginning placed it on a marginal border. A Europe that is now increasingly open and puts Trieste once more in a strategic position.

For this reason the “European Papers” make space, when possible, for contributions from the countries of Eastern Europe. For the same reason, as a member of the World Academy of Art and Science (www.worldacademy.org) I contributed to the founding of its South East European Division, on the occasion of the world conference of the Academy in Zagreb in November 2005. Credit goes to Ivo Šlaus, Honorary President of the World Academy of Art and Science, Professor of Nuclear and Particle Physics at Zagreb University, member of the Club of Rome (see some of his articles in the European Papers).

We were then invited, together with half a dozen “academics” to the home of Stipe Mesle, former President of Croatia (he had also been the last President of the second Yugoslav Republic).

Before dismissing us he gave each of us a bottle of white wine he had produced. I told him: “Thank you, I’ll drink it the day Croatia enters the European Union”. He answered, “Drink it now. That will take some time. That day I’ll give you another!”. I count on reminding him soon of his promise.

So, the Trieste hinterland becomes wider and deeper.
— Chapter 9 —

An Open Letter to All those who are or will be 65

Dear Madam, Dear Sir,

May I draw to your attention an issue that is constantly being talked about in the press, is on the lips of almost every politician and economist, something that you have probably had the occasion to discuss even with your neighbour: the issue of population ageing in industrialised countries, and in the long run in all other countries as well, which is one of the major problems of our time.

...Not true, I am afraid. You do not drive a car with your eyes glued to the rear-view mirror.

In reality, what we are witnessing is a spectacular lengthening of the average lifespan which people, because of outmoded assumptions, perceive as a process of ageing. In fact, it is old age itself that is ageing as the time of its onset constantly recedes. For today, on average, a 60-year-old human being enjoys the physical and psychological fitness that would have been normal in a person 10 to 15 years younger two centuries ago. The fact of the matter is, and it is good news indeed, that the average lifespan is now growing longer. In Europe, life expectancy is now rising by one whole year every four years. Meanwhile, for all age groups, at least until the age of 80, the general state of health is improving slowly and steadily. Today, it is at 80 years that one finally settles for being old, and even at that age there are exceptions.

If the phenomenon that characterises our societies is not population ageing but essentially an increase in the length of life, then perhaps what we need to do is to welcome with open arms the existing and future cohort of 65-year-olds, 90 per cent of whom are likely to enjoy relatively good health until they are at least 80. Those belonging to this age group, that is, you and I, dear reader, possess all the credentials for entitlement to an active role and a full life within our society.

But before that becomes possible, there are a number of obstacles and prejudices to be overcome.

The Pocket Larousse, for example, defines the ageing individual as ‘someone of diminished vitality, out of date, no longer in use’. To age means ‘being no longer valued’ and ‘ceasing to measure up to the needs of the times’. Maybe that I show it is.

But, in today’s world, these definitions properly apply only to those who are over 80 for whom the problem has to do primarily with exclusion, autonomy and dependency, all of which affect the entire population in varying degrees. Now, obviously, such difficulties
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occur more frequently at an advanced age, but for people over 70 their incidence is only two
or three times greater than the rest of the population.

Our main purpose, then, must be to ‘restore’ to the mainstream of life, to as active and full
a life as possible, all those 65 to 80 year olds who, thanks to the lengthening of life, remain
ready for active service. I do not think I am much mistaken in thinking that you, who like me
are over 60 or 65, or will be so one day, broadly speaking share my concern in this matter. So,
let us together begin our quest for at least another 15 years of active living.

1. Growing Old Occurs Much Later

Most biologists will tell you that the oldest age a human being can reach is 120. Such
longevity appears to apply to only a very tiny number of exceptions but this only defines
the outer biological limits of our species. For the time being, it is the 100 year olds whose
numbers appear to be on the increase and it is to be hoped that this involves an extension of
life rather than mere survival in an abject state.

My concern, however, is that the debate about what it means to live to the age of 120
should not overshadow what seems to me to be the number one social and human priority of
our times: namely, how to provide a normal and enriching lifestyle for all those who live to
the age of 80 years and beyond.

The somewhat distorted debate about population ‘ageing’, a term that betrays our diffi-
culty in adapting an outmoded perception to a new situation involves the age group between
60 and 80 years of age. It has to be repeated that we are ageing much later today than hitherto,
but the notion of ‘ageing’ still places an intolerable burden on the shoulders of those who
have passed over the threshold of 60 years. We simply have to stop using the term to describe
those in that age group, and that is not easy.

We need to bear in mind that culture and custom at times exert an inhibiting influence.
Just think of how every day we talk about the sun ‘rising’ and ‘setting’ five centuries after
Galileo Galilei battled to convince the world that it is the earth that rotates around the sun
rather than the sun around the earth. It was not until 1822 that the Church retracted its con-
demnation of Galileo for his discovery. And quite apart from the still substantial number of
human beings who persist in their belief that the sun rotates around the earth, we have not
been able, after all these centuries, to modify the language we use, so that, in almost every
language humans speak, we continue to talk about the sun ‘rising’.

The battle, then, to give to the term ‘ageing’ a meaning that more aptly reflects the new
situation may be harder and may take longer than we think. It will certainly depend as much
on the perception that 60-year-olds have of themselves in the future as on society’s ability in
general to update its assumptions.

2. A Life Expectancy of 20 Years at 60

There is one point we need to clarify straightaway. There has clearly been a tremendous
improvement in the life expectancy of the population particularly as a result of an enormous
An Open Letter to all those who are or will be 65

fall in infant mortality. Some people use this point to assert that this is the main reason for current demographic developments.

There is, however, another statistic we need to consider if we are to fully appreciate the significance of this growth in length of life. This has to do with life expectancy at 60 and 65 years, which runs between 15 and 20 years in industrialised countries, with most of the other countries beginning to catch up. Countries which are very ‘young’ today, with the bulk of their population less than 20 years old, will be facing enormous ‘ageing’ problems in 20 to 30 years’ time. China, for instance, has already started to think about the issue. So what the ‘older’ countries manage to achieve today in terms of solutions will serve as a valuable benchmark for all those other countries tomorrow. In this respect, we have a head start.

Nor should one forget that, regarding life expectancy at 60 and 65 years, there is a big difference between men and women in many countries, some living four or five years longer – a point that needs careful attention.

Finally, our statistics need to be increasingly refined to give a clearer picture of the effective levels of autonomy, health, education (especially lifelong training) and informal activities of 60 to 65 year olds.

All this involves a range of economic and financial measures and initiatives affecting the structure of training and the nature of the occupational and leisure activities we pursue.

3. Optimizing the First Three Pillars of Retirement

First, let us take a look at the financial situation of 60 to 65 year olds. We shall start with what in most countries is the basis of most people’s pension, albeit with significant variations.

To begin with, we have what is called the first pillar that in some countries accounts for the main part of a person’s pension, beginning at either 60 or 65 years (the time of entitlement varies considerably from one country to another).

This first pillar is based on the pay-as-you-go principle: monies are collected from a levy on wages by the state that, often out of necessity, adds extra financial resources derived from different kinds of tax. Such monies are then disbursed to those entitled to a pension (that is, you and me, who are also tax-payers) as and when our pensions are drawn. The scope of this first pillar is to provide every ‘retiree’ with a minimum income, which in some countries is subject to a maximum amount per couple; in Switzerland, for example, this ceiling is around 2000 euros. This means that in the case of the highest earners this pillar functions as a channel for wealth redistribution. The main problem with this system, however, is that if the number of those in work diminishes in relation to the number of those drawing a pension, then the State has to constantly increase taxes to make up for the difference and we are all affected.

In my native city of Trieste, the press recently reported that the number of retirees had levelled with those employed (who, in theory at least, must pay from their wages the pensions of those no longer working). Such a system, if acquired, where entitlements are defended at all costs, can only lead to failure, i.e., bankruptcy, with inflation either directly or indirectly
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causing a drastic reduction in pensions. As the senior members of the community, moreover, we should feel a little ashamed at having to rely to such an extent on the wages and earnings of the younger members. After all, it has always been maintained that we should think of the generations to come and secure a better future for them. But just what sort of future is that going to be if they have to keep working harder to support us retirees? Beyond a certain point, indeed, intergenerational solidarity begins to be affected as does the need not to discourage youngsters from working.

Let us, then, by all means preserve a first pillar, which will always remain the mainstay of our social welfare system, but let us, at the same time, be careful not to allow our short-term concerns to destroy it. I, for one, will be concerned to preserve part of my financial resources in the form of a first pillar that is both realistic and sustainable over the medium and long terms.

Let us now take a look at the second pillar of our financial resources after the age of 65. This is essentially a system based on capitalisation and it takes a number of different forms. It is also often called the complementary system. It involves collective (either directly or indirectly) savings, which provide an income on retirement taking account of calculations of probable survival. This means that with the same capital amount, if I start drawing my pension later, I can expect a higher income. The main snag with this second pillar, however, is inflation: if at 65 years I draw 1000 euros a month, with a rate of inflation of only 2 per cent per annum, by the time I am 75, I will have lost around one-quarter of my purchasing power. While with an average inflation rate of 3 to 4 per cent per annum, my 1000 euros will have lost half their value.

Now let us suppose that I live on for 20 years after retirement. In that case, over time, my second pillar is not going to amount to much. It is fundamental therefore, to understand why control of inflation is so crucial. One could, of course, look to one’s return on capital to offset the impact of inflation, but that merely introduces a second element of uncertainty.

Everything would be clearer if the return on capital were expressed in terms of its ‘real’ rather than ‘nominal’ value. But even then, there are many investors and economists who maintain that a little inflation helps ‘to oil the works’ and helps investors and risk-takers to pay off part of their debt from inflation itself.

The third pillar is made up of any savings, liquid and fixed assets we may have set aside for a number of reasons, often, where circumstances permit, as a supplement to our pension.

So we find ourselves at the age of 65, or at the point of retirement, with three pillars with which we try to make ends meet as best as we can. None of the solutions is perfect by itself and we would be wise to spread our risk across the three pillars in order to obtain the best returns possible and minimize the risk of any unpleasant surprises.

But think for a moment. If we lived in the 19th century, at the time of Bismarck, for example, when the age of retirement was over the average age of mortality, there would be no real problem. But do we really wish to give up all those opportunities for living that the industrial revolution has offered us? At 65 years, most of us have before us the possibility
of living until 80 in relatively good health: a long enough time for us not to have problems concerning the soundness of our three pillars.

Despite an almost universal claim to aspire to retire as soon as possible, statistics show that leaving the workplace results in a rise in the number of suicides, in health costs, and in the incidence of major family problems and of various other kinds of upheaval. We think we are entering paradise only to find ourselves moving into a world of decline and disappointment. Those who survive the experience are precisely those with a marked tendency to work and a great capacity for productive activity. Even the ravages of Alzheimer’s disease seem to be less devastating for those who remain active. So let us prevent our dreams from turning into nightmares from which we cannot escape.

The real challenge, then, that faces us when we enter retirement, is that of remaining active: first of all for the sake of our health but also in terms of adding a fourth pillar to the three we already have. The aim of this open letter, and to be honest, the whole book is precisely to promote, by means of an in-depth debate, this fourth pillar. This in any event is my intention which I will continue to pursue until I am at least 80.

4. Remaining Active: The Indispensable Fourth Pillar

The fourth pillar is not just another way of postponing the age of retirement. It involves a change to the organization of the “Welfare State” and is based on part-time work (roughly 20 hours per week). We see it as part of a social policy for the appreciation and integration of the over 60s. Part-time work does, of course, also apply to youngsters who combine it with training, to working families, and to those who pursue a number of different occupational activities at the same time.

Patrick Liedtke and I wrote a book on this subject called Full Employment in the Service Economy, published in Paris in 2000 by The Economica publishing house.

As an integral component of the four pillars strategy, part-time work reflects the fact that over 60, even though we need to remain active in order to live well, we cannot work as hard at 65 or 70 as we did at 30 or 40. A new balance has to be found. If tennis players, for example, quit the professional sport at 30 it is not because they are ‘old’ in any absolute sense. Every age has its golden period, and this has to be accepted.

The unavoidable current debate about postponing the age of retirement would be much more constructive if part-time work were given its proper place. As early as 1983, the Geneva Association launched its research programme into this subject devoting a number of articles and books to the issue of gradual or progressive retirement.

The four pillars concept must be considered together, even though in some countries the holding of consecutive pensions is still forbidden, revealing a failure to understand that it is precisely thanks to this that we all have our best chance of finding a satisfactory solution to our financial problems. That our total assets are thereafter subject to tax merely ensures that the State or public political authority is able to produce rules for the achievement of social solidarity and justice in the manner it deems most appropriate. Let us first try, however, to
depend on the four pillars to give each of us the best possible chance, especially those in the 60 to 80 age bracket.

5. Let Us Help the Young

One of the old arguments against the fourth pillar is that ‘old’ persons by working later fill jobs that would otherwise be available to the young. Quite apart from the fact that opportunities for job substitution are not as frequent as one might think, this argument is both specious and misleading: for the young themselves will be increasingly discouraged from working if they have to forego a growing share of their wages in order to finance retirees’ pensions. Moreover, available jobs are to be found in sectors such as teaching, tourism, health, research which suit the over 60s most. Finally, people everywhere are talking about the approaching labour shortage (already noticeable in some sectors), which will have to be met in part by recourse to immigrant labour. This means that there is a place, for “foreigners” as well as for retirees who should no longer be treated as outsiders by the communities in which they live.

6. Towards a Fiscal System that Aims at Social Progress

Our demand for part-time work for the 60 to 80 year-olds does, however, call for additional comment and qualification. First, job seniority can no longer be applied. One could not expect to be able to continue up the “career ladder” as one did before retirement at age 65 especially in middle- or senior-grade jobs, or to expect to be able to earn half of one’s final salary or more, except possibly if one is holding a key position in management. Let us not forget: the fourth pillar is very much part of a social strategy of which all four pillars are essential components. This would dovetail with the financial interest of those able to offer employment but are often prevented from doing so because of the cost. What is more, after 65 you will not have to contribute (or you will pay much less) to your first and second-pillar pensions. There should be fiscal adjustments as well. You will, after all, be taxed on your global income including your, sometimes partial, first and second-pillar pensions, other income as well as your fourth-pillar earnings.

All parties stand to gain: the State, employers and especially you who will achieve greater long term financial security, greater social satisfaction and, at the end of the day, better health. For the self-employed, the issue of an age limit for retirement is already much less drastic. The proportion of freelance work tends to increase, due to the specific stimulus of the four pillars system, with a full range of mixed options between salaried employment and full self-employment.

We must not forget that paid part-time employment, however, is by no means the only kind of productive work. Voluntary work is catching on everywhere and it is high time that this sector’s contribution to the national wealth be acknowledged by means of economic indicators. Voluntary and remunerated work are becoming increasingly interdependent and can be complementary as well as representing an alternative economy. Should we, for example, build more crèches and/or promote child care at home? Our somewhat distorted traditional economic thinking tends to approach everything in purely budgetary terms. Today, however, in growth sectors like education, health, tourism, cultural pursuits and so forth, voluntary and
remunerated work frequently combine in different ways. For this reason economic analysis tools are needed to take greater cognizance of this fact which is not the present situation. Such recognition will only serve to increase the job satisfaction of those working in the voluntary sector and encourage them to further efforts. If it is true that in our society money is essential, it is, at the same time, absurd to suggest that only what is paid for is of value. This attitude explains the lack of appreciation for housework and the devaluing of farm work during the first phase of the industrial revolution. The time has come for a more complete inventory of all activities contributing to the wealth of nations.

One consequence of the acknowledgement of the economic value of voluntary work would be the introduction of economic incentives (tax breaks and modest subsidies) to encourage its development.

As far as our fourth pillar is concerned it could well include voluntary work. However, as an essential component of our four pillars system, it must be made to contribute directly or indirectly to our financial equilibrium. For the more affluent among us the problem of fourth-pillar earnings is doubtlessly less important. Artistic and cultural pursuits, friendship, billiards and cards, travel and hobbies of all kinds have always constituted a very active non-remunerated fourth pillar, and this brings us to what is often termed the “leisure society”. It must be acknowledged that leisure pursuits too can be, and frequently are, productive activities in a number of fields. All agreeable and exciting work becomes a pleasure, often more enjoyable than a hobby. Whatever the case, the question is always the same: does the activity in question enhance our personal well-being and add to the wealth of society?

7. Freedom to be Conquered

All is very well, I hear you say, but after 30 or 40 years of working, you have had enough and want a bit of peace and quiet, time for yourself! Fair enough; but let us be clear about the terms we use. To enjoy this peace and quiet it is well to employ a four pillars strategy to insure ourselves against economic risk and the hazards of living. Maybe those who are very well off can settle for the opinion of a good financial adviser. And not always.

As for having time for yourself, I have seen many friends “achieving” freedom by retiring. They have looked forward to savouring a problem-free existence and making the most of every good opportunity that presents itself. In most cases, however they do find themselves on a fast track to decline, unless they happen to be committed to some sort of activity, albeit entirely voluntary. Perhaps it is also a matter of individual choice. I personally find that life’s problems and accidents occur whether we like it or not and often unexpectedly. I maintain that it is better to anticipate them even at the risk of disappointment: at least they will be occurring in the domain of our own choosing and we will enjoy a slight extra advantage when it comes to dealing with them.

That said, from a social point of view and for the vast majority of workers even in rich, industrialized countries, there remains the major challenge of preparing for being 60 or 65. It is a question of avoiding automatic marginalization, however fine the words that accompany it, so that each of us can make use of a certain margin for initiative. The basic point here is
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that the priority purpose of lifelong training should be to provide preparation for an active life after 65.

I am someone who since 1959, has always worked full time. But I have always had a second, and even a third, part-time activity alongside my main one. And it is thanks to these parallel activities that I have been able to change jobs in a way that was useful. It is also true, perhaps, that I have been blessed so far with good health that has made it possible for me to live such a life. Not everyone has to do as I have done. Let us just say, however, that from the age of 50, we are able to develop the professional knowledge and training that we have in order to update them and from them create other, possibly complementary ones. Over time, we should be able to recognize where in terms of knowledge and experience our strengths lie, and what our shortcomings are which affect our lives and work negatively.

Ultimately, recognizing where we have gone wrong and where our knowledge is insufficient or downright wrong provide opportunities for improvement and for learning from our mistakes and from our ignorance. Since all human knowledge is both incomplete and partial, even for the greatest experts, we are in good company. The task of sifting our knowledge, of rooting out outdated ideas or those that are downright detrimental to what we do is a difficult one. Basically, specially with advancing age, we cannot change all that much, but the more we recognize our mistakes or our ignorance, the more we shall fill our lungs and minds with fresh air. The point of all of this is, of course, that we should live better.

Modern technology, also the spirit with which it is used, will help all of us enormously with learning to adjust to the fourth pillar. Even Einstein, who was not reckoned to have been a particularly good pupil at school, when he developed the theory that was to earn him a Nobel Prize for physics and, with it, fame, had conducted the main part of his research being a minor employee in the Patents Office in Berne. Here is a good example of how to pursue an activity which is initially secondary, and parallel to one’s main job. Admittedly, very few of us will become 21st century Einsteins, but I do believe that most of us will carve out our own slice of life till at least 80 and enjoy the benefits it brings in every area. God speed and good luck.

8. Managing the Cost of Better Health Well

The last point concerns health, yours and mine, starting from the ages of 60–65 till 80 with a view to enabling us to lead an active and satisfying life. Almost every study carried out on people of our age shows that the best way of maintaining good health is to remain sensibly active. Then there are the recommendations about a wholesome, balanced diet, a modicum of physical exercise, and exhortations to give up smoking. However you can take consolation from the fact that a glass or two of good wine is not only permitted but desirable.

That said, with advancing age, the human machine needs to be repaired and to be able to utilise some spare parts. This has been possible for almost a century now with constantly improving results. The textbooks on the history of medicine all concur that up to the end of the 19th century the work of doctors didn’t have even a minimal influence on the course of events, their ministrations being practically without effect. We live in a blessed age
even though accidents still occur, diagnoses are not always correct and treatment is at times ineffective. But in spite of everything, we manage to treat at least one in two cancer cases successfully.

Take hip replacement for example. There comes a time when your thigh bone or femur can no longer turn within the pelvis because of the wear and tear on the cartilage, which is like the lubricating oil that makes a door turn easily on its hinges. After the age of 60, one in ten persons ends up having problems of this sort and is in considerable pain. If the average age of the population remains 60 years or less, then very few people are affected. In the past, up to the middle of the last century, when the hip joint seized up the only solution was to insert a pin to block leg movement and reduce the pain, with the consequent and final loss of mobility and any kind of part time work. In 2001, 1,100,000 hip replacement operations were performed worldwide and the average age for a first replacement was 63 years. The total bill for these operations (pre- and post-operative costs included) amounted to around €20 billion. There are, of course, various other types of prosthesis. As a result, health costs are rising and on average you and I are feeling increasingly better. Perhaps one day it will be possible to replace the cartilage or grow a new one. In fact it is very probable within a few decades, probable and also very necessary, given the lengthening of lifecycle of our planet’s population. Over time, new treatments could both cost less and be more easily borne by the patient who at present must wait several weeks, sometimes even months, while not only for bone and prosthesis, but also for muscles which were sectioned to provide access to weld back together. The results, however, are there and numerous replacement carriers go skiing or mountain climbing. Our generation is thus able to enjoy a whole new lease of life.

Another example is the screening and treatment of colonic cancer both of which can be performed at a relatively low cost thanks to optical fibres.

We live, then, right at the heart of a period when vast amounts of biological and chemical research are going to make possible and even guarantee the increasingly high levels of health and well-being that will help us build our lives after 65.

It is right that we reflect on the economic value of such health costs. If they are rising, it is largely so that we can increasingly benefit from advances in medicine. There are, of course, other kinds of problems — the efficacy of treatment, or the abuse of pharmaceuticals — but at the heart of the matter is the fact that we spend more on health to be able to live better and longer. And if in this sector there are crises, breakdowns and even major incidents, it is equally true that such things occur in every domain of human endeavour.

One is, however, struck by the fact that medical ‘costs’ are often presented as negative costs. I personally can see no difference between buying a car to be fully mobile (except in city centres) and paying for the sort of treatments such as those mentioned above that simply enable us to use our own bodies to move about. In both instances, car and health treatment, we are paying for efficiencies that enable us to live better. This idea, which may seem at first glance to be naive, actually opens up a whole new vision of the economy and economic thought which I have had the occasion to develop further elsewhere.
Finally there is one further important point we need to bear in mind: health costs are not evenly distributed across our lifecycle. Early childhood excepted, they increase on average with age and also in line with new therapeutic procedures. The problem, therefore, is financing such costs with advancing age.

In many countries, health is essentially part of a State-run welfare system. In others, there are private systems often involving public participation or subsidies. However, in the health sector, there remains the question as to whether the system should be run wholly or in part on the basis of the supporting first pillar (the pay-as-you-go system) or whether money reserves also need to be built up, especially during the healthier relatively disease-free years so as to meet the higher costs that occur after 60. The private insurance companies assure us that reserves are accumulated during the low-cost years in order to offset the higher costs that occur with advancing age. But this is far from satisfactory. On the one hand, the reserves in question only very partially offset the rise in costs (and premiums) for people of advanced age. On the other, especially in a free-market system, year on year, companies are in competition with one another leaving very little surplus for the accumulation of significant reserve funds. It seems to me that we, as consumers, would be well advised to combine a good universal pay-as-you-go system with something akin to the second-pillar pension schemes based on a capacity to generate reserves which can be used whenever they are needed. On the other hand the two forms of the second pillar could be combined in a single scheme.

This issue is not simple and we can do no more here than point to one or two fundamental aspects; for example, the fact that health inevitably has to be managed throughout the lifecycle. There is also the matter of being able to take immediate action when required: for example, hip arthritis triggering appalling pain may occur practically without warning. Having to spend sometimes months on a waiting list is simply not acceptable. How, then, can the private and public systems best complement each other? If the interests of the patient were taken into account, it should not be so difficult to find an answer. The situation varies considerably from one country to the next, but one is frankly baffled by the then British Prime Minister, Tony Blair’s statement, made some years ago, that things were improving because the patient waiting list had dropped by 100,000 out of 1.3 million.

I think you will agree with me on at least one point: the health system must work at its best for our personal quality of life not only between the ages of 65 and 80 years, but also beyond that age group.
— Addendum 1 —

The Context for Democratic Revolution
Reconceptualising Macro-Economics*

The global demographic revolution is taking place in a situation of profound economic change which requires us to consider what, today, constitutes “The Wealth of Nations”. This is of course a very complex matter that I have tried to deal with over the last 30 years.† Only the main central points of reference are listed hereunder for the sake of discussion and further research, keeping in mind the fact that the word “sustainability” is in fact an indicator of the necessity to reconceptualise macro-economics and hence the definition and strategies for “wealth”:

• The notion of wealth is often assimilated to that of National Income, without realising that the first normally relates to a stock of goods and services, and the latter to a flow (of remunerated production, the “value added”). In this way, a country or town can be very “rich” by spending money disposing of waste, rebuilding houses destroyed by hurricanes or wars, cleaning water and air, but be at the lowest level of survival.

• The basic implicit assumption when the discipline of economics was first developed (by Adam Smith and followers) was that in a world of scarcity, the value added was really adding to the natural wealth. It was the successful birth of the Industrial Revolution which also produced what we now know as “economics”: manufacturing was the key.

• Ever since economic activity has been divided into three sectors (agricultural, industrial and services). Today this subsection is misleading, in a situation in which 80% of all jobs are in services. Services today dominate WITHIN industrial production (from research to waste management).

• And there is no product without service and vice versa, only the relationship between the two has changed: thanks to technology, in most cases the production costs of tools has, in relative terms, greatly diminished, and the costs for their utilisation – through services – has greatly increased.

* The notes which form Addendum 1 are the author’s, as discussed at the Trieste Forum on 5 March, 2013 on Science and Technology: Impact on Society and the Economy organised by the World Academy of Art and Science at the ICTP (International Centre for Theoretical Physics, Grignano, Trieste).


See also: “The European Papers on the New Welfare”, 19 issues published since 2005 (of which 6 are in English), fully available on www.newwelfare.org; and Cadmus, on cadmusjournal.org (7 Issues from 2010).
We like to stress the point that the notion of value itself depends on a chain of “production” which starts with R&D, well before any “manufacturing process” begins and depends on the ability to manage a portfolio of research possibilities – hence a first form of risk management. The manufacturing phase itself is based on a majority of service functions (planning, quality control, safety control, storage, distribution, financing etc.). Then the product and related services go through a period of utilisation (which is the real value added), based on the management of two uncertainties: the length of the utilisation period, the costs of repair, accidents and maintenance. At the end there is the cost of waste disposal (with only a part going to recycling). All this is a process based on variable periods of time, where the notions of vulnerability and risk management are fundamental.

The traditional notion of value is based on the costs (remuneration) of the factors of (industrial) production: the price is given in a moment of time – crossing the demand curve. This “equilibrium” system is assumed as a theoretical basis for a system that aims at defining or achieving certainty (a kind of tautology). Incomplete information of various kinds is referred to as the reason why in practice there are always margins which make it impossible to achieve a “perfect” system. Some economists still believe that with time “scientific” advances will reduce this “incomplete” information. In reality things go the other way because value, real economic value, has to consider ever longer periods of time, and anything in the future (especially the long term) is largely uncertain. The notion of sustainability is at the core of this issue. On the other hand, many social scientists still believe that complete information is the goal of science: on the contrary science is a process of advancing knowledge by surpassing all our present limits, where all we know is incomplete. Pascal said: knowledge is like a ball in a universe of ignorance and the more you expand this ball, the more you get in touch with a larger number of unknown realities. There is therefore something very profound in the logic where the notion of value in “serviced based economy”, as indicator of increased wealth, has shifted from the cultural premises of the Industrial Revolution (the costs of the production factors) to the utilisation of products and systems in a time framework (which is in fact probabilistic). It is also very important to understand that “utilisation” does not mean “use” (in the old economic meaning, equal to destination in use), but the period when there is a positive performance, producing “benefits” (real positive value). In this way waste (and more generally the environmental or ecological investment) is integrated with “costs”. There is no longer contradiction between wealth and value.

Measuring real economic value, today requires the taking into account: added values that add to wealth, “deducted values which represent costs to re-establish destroyed capacity of available resources to produce wealth (e.g. depolluting water), human capital (the stock of knowledge and capabilities available, only partly quantifiable in monetary terms), environmental capital (also only partly quantifiable in monetary terms). In other words, the definition and quantification of the “Wealth of Nations” require the combination of monetary and non-monetary indicators, in as much as they measure positive values.

The utilisation and diffusion of money must of course be considered extremely important, although human nature has a tendecy to misuse major inventions (like fire, the knife or the control of the atom).
• Economics should better evaluate the transition from the non-monetarised systems to the monetarised ones, keeping in mind the complementary contributions to wealth and to society in general of non remunerated activities. Scarcity sometimes is a consequence of human activity (in this case monetarised activities indicate the fight for wealth, against poverty) We would also not dismiss the idea that technology might in some cases become so efficient as to make some products-services totally free.

• Economics sometimes (Samuelson, the Chicago school) also indicate that this discipline is also concerned with activities which do not imply the actual use of money: but this refers only to situations where there is an exchange (where in fact money, even if not expressed as such is an implicit reference). In fact a large part of wealth can hardly be referred to any exchange system (the value of the oceans, of forests, of the earth’s endowment): only small, partial activities can be and are “monetarised” (mining, logging, tourism etc.), not the whole system. But it is the integration of the whole system which provides the “Wealth of Nations”, extending classical and neoclassical economics well beyond the present frontiers to include all relevant contributing factors to our wealth in a period in which the Industrial Revolution has given way the Service Economy.

• In this economy, deterministic thinking linked to notions like the equilibrium of supply and demand curves, opens the way to a non-deterministic philosophy and culture, where the issue of managing risks and uncertainty is at the centre of the picture to provide economic (probable) value from now into the future.

• The notion of “sustainability is in fact an indicator of the necessity for “industrial” Economics to take a substantial step toward understanding how to increase the “Wealth of Nations”. In this perspective middle and long term issues (“sustainable”), linked to the future, inevitably require an analysis based on uncertainty and risk management.

• Both economists and ecologists (and those in other connected areas), taking example from the type of questions Adam Smith and his followers asked, should overcome the segmentation of their disciplines. They would gain in credibility. Concerning the famous report to the Club of Rome on “The Limits to Growth”, which opened up the discussion on many of the issues mentioned here, and to some, many more, one could explore the fact this report made clear that the future of the “Wealth of Nations” cannot be envisaged as a simple extrapolation of the old, traditional Industrial Revolution. Even if industrial (manufacturing) production will remain important (though overwhelmed by services in different forms, the best “industries” use and develop the best services), it is about the development and extension of the “Wealth of Nations” around the globe that we are concerned. The main limits are in a conceptual mind frame, which we should try to open up. Sustainable development has therefore essentially to do with a reconceptualisation of macro-economics. And it is within this context that the ongoing demographic revolution should be considered, as it represents probably the most challenging issue for our world in the immediate decades ahead. This increasing human capital, in terms of quality, quantity and the extension of the life cycle provides the raw material for one of the greatest challenges in human history.
Addendum 2

Introductory Notes on New Economic Theory

The following are some simple notes on what I think are some very basic fundamental issues to consider for the rebuilding of a new thinking on economics. They have been dealt with mainly in Cadmus and other publications since 1978. However all the major issues might appear dispersed and priorities are not always clearly perceived as such. In addition, they are all strongly interrelated. So let me reassume here the priorities:

Over the last two centuries the Industrial Revolution has become the key priority issue for economic, social, as well as historical and cultural development. On this basis Adam Smith wrote “The Wealth of Nations” and unintentionally founded economics. Economics as a discipline is still today a consequence of the Industrial Revolution as such. It is very important that this starting point is understood.

At the time of Adam Smith the majority of those involved with economic issues insisted that the key for producing wealth was agriculture (the same type of “economists” today think that industrialisation is the basic first reference and priority). Quesnay (“the basic economica activity is agriculture”) and others did not perceive the dynamic potential of industrialisation which became the prime factor for development from the eighteenth century.

Today, the implicit foundation of economics based on the almost exclusive priority of the industrial process is misleading. Services are now by far the dominant factors determining economic and social development (whereas Smith considered them secondary in his time), in all economic sectors (including agriculture and manufacturing). Most services consist of delivery systems such as education and health care which function very differently from unit production of products by industry. The main investment is in the system, rather than the individual product. We should never forget that there are no services without products and vice versa. In most cases technological developments decrease the cost of “products and increase the costs of services (performance and management) attached to them.

The key issue is then the notion of value. In the classical Industrial Revolution, more useful products meant more value. Their use (and destination) was the key point.

Economic value is also of course necessarily a relative human concept. On what is it based? It should be based on values to human welfare (see again Adam Smith) rather than simply on costs alone. Many things that cost in many cases have negative value to humanity.

* The notes which form Addendum 2 are the author’s, as discussed at the Trieste Forum on 5 March, 2013 on Science and Technology: Impact on Society and the Economy organised by the World Academy of Art and Science at the ICTP (International Centre for Theoretical Physics, Grignano, Trieste)
The notion of use value has been substituted in practice in the service economy by the notion of “utilisation value”. The difference is based on the acknowledgement of a time period.

Value (use value) is normally related to an equilibrium market situation (which is alright in a traditional Industrial Revolution situation), finally sanctioned by a price (or an analogy of a price), at a given moment. The philosophical reference is static (in some cases it is a comparative static – see Samuelson). Such equilibrium would be increasingly more complete thanks to growing knowledge and information – in the case of utilisation value. In order to produce wealth we have to acknowledge a process starting with research (largely a probabilistic system), followed by “production” (integrating planning, finance, security, logistics etc.) where service functions can easily represent 80% of the costs. We then have distribution and further on the utilisation phase (based on a hypothetical duration). Finally there is the waste management phase. All this is a probabilistic process, including future performances (which exclude perfect equilibrium). Value then depends on its positive period of utilisation. This can be variable and is normally extended into the future. The quest for wealth then is based on the management of a series of uncertainties.

Use value and utilisation value are then two fundamentally different concepts, based on very different perceptions, philosophies and realities.

One could dare say that economics today represent the kind of difference which has already grown in physics for about a century between a Cartesian-Newtonian vision (often aiming to provide a deeper vision of objective “reality” as such – even Einstein said that God does not play with dice) and quantum physics, where the issues of uncertainty and probabilities are central ones.

All this implies that economics has to rethink basic issues such as: what is value? How do you “produce” it? How to manage and monitor uncertainty? How to integrate monetarised and non-monetarised assets? How to monitor the transition from one to the other (and vice versa) and which ones represent a positive or a negative development? What do productivity and capital mean? etc.

Most likely the present discussions on the economic crisis increasingly become more dependent on the limits of economic thinking and analyses derive from the period when industrialisation was conceived as the essential and priority tool for development. Today the tool is still important but increasingly less adequate and it does not really explain “crises”.

The ecological movement will probably become increasingly more efficient if it really contributes to the rebuilding of the new economics. The opposition between “ecology and economics” is deadly for both. But they first have to start to redefine “value”.
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DOCUMENTS

• “The Employment Dilemma and the Future of Work”, a report to the Club of Rome (also available in German - 2 editions -, French, Spanish - 2 editions -, Italian, Korean, Bulgarian)

• “Notes on the Service Economy: the Context for the New Welfare”, a discussion paper


• Abstract from “DIALOGUE ON WEALTH AND WELFARE” (Pergamon Press, Oxford, 1980)

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As an economist, his fundamental endeavor has been to understand economy as a basic human activity founded on technological and cultural developments. His years as Director of the techno-economic division at the Battelle Institute in Geneva provided him with invaluable insights into the interaction between research, knowledge and economy. He contributed to the organization of the first conference of the Club of Rome in Bern and had many opportunities to interact with great scientists such as Lew Kowarsky, Victor Weisskopf and his brother Walter, Karl Popper and others. He was founding Secretary General of the Geneva Association (1973-2001), the world’s premier research center on economic issues related to risk and insurance, whose members include 90 CEOs of the world’s major insurance companies in their personal capacity.

In parallel he taught a course at the University of Geneva on what has since become known as Service Economics benefitting from his professional experiences, and helping to formulate little by little a coherent view (and theory) of contemporary macro-economics. All this made it possible for him to publish 12 books, including four reports to the Club of Rome (prefaced by Aurelio Peccei and then Alexander King) and the major one, The Limits to Certainty prefaced by Nobel Laureate Ilya Prigogine. In 1975 he founded The Geneva Papers on Risk and Insurance (now published by Palgrave and edited by the Geneva Association).