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ΙΑΝΟΥΑΡΙΟΣ - ΜΑΡΤΙΟΣ 2022 | ΤΟΜΟΣ 63 | ΤΕΥΧΟΣ 1

2nd INTERNATIONAL CONGRESS

EUROPEAN ASSOCIATION OF PROFESSORS EMERITI

The Capital of Knowledge



BOOK OF ABSTRACTS

APRIL 28-30, 2022 • NAPLES, ITALY

Special Edition of Hellenic Society of Cardiology





**2ND INTERNATIONAL CONGRESS
EUROPEAN ASSOCIATION OF PROFESSORS EMERITI**

Theme: *The Capital of Knowledge*

APRIL 28-30, 2022 • NAPLES, ITALY

GUEST EDITORS

Vincenzo Bonavita, Naples
Luigi Campanella, Rome
Dennis V. Cokkinos, Athens
Natale Gaspare De Santo, Naples

BOOK OF ABSTRACTS

Archives of
NATIONAL JOURNAL OF HELLENIC CARDIAC SOCIETY



*The Abduction of Europe
Bowl, Attica, 370 B.C.*



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ΤΟΜΟΣ 63 | ΤΕΥΧΟΣ 1 | ΙΑΝ. - ΜΑΡ. 2022

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The Capital of Knowledge
April 28-30, 2022, Naples, Italy

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WELCOME LETTER

Dear Colleagues,

It is a privilege and an honor to welcome you to the Second Congress on The Capital of Knowledge of the European Association of Professors Emeriti that will take place in Naples on April 2022, 2022.

The main aim of the Congress is to protect the richness of contributions of professors emeriti and of any retired academician throughout Europe. Emeriti belong to the highest centile of the cultural enterprise of all European countries. They are ambulant libraries of their disciplines since more than ninety per cent of the knowledge that counts in their field has been developed during their academic lifespan. Their talents and creativity deserve to be protected and actively utilized. They should not be separated from the academies where they have served, they should just change their role from drivers - a role needing stronger energy-into members of the team, and not merely a minor role, in all human activities. The talent and creativity of emeriti is protected in many European countries where they can contribute to advancement of research and teaching. We are pleased that the European Union allows emeriti to have active roles in the programs they support.

The Naples congress will discuss the importance of Europe as the place of spirit and of politics rendering possible full participation of emeriti professors in mentoring and research. Mentoring is a vocation for life, and aging does not prevent scientific breakthroughs.

The congress of the EAPE is peculiar and is not driven by professional needs but rather by a willingness to serve the position of emeriti in the aging society, in line with the calls of UNO, WHO and the European Union for creative aging.

The problem of aging in artists and scientists is fascinating. As reported by the German poet, essayist and physician Gottfried Benn - nominated for a Nobel Prize five times - in the last four hundred years 150-200 geniuses determined the cultural progress of Western Europe. Half of them were old-old. The abstracts published herewith express the many souls of our association, our interest for research and the passion for teaching of our creative members. We would stress that a unique group of abstracts are authored by students, young scientists and still active full professors leading creative groups: they have been requested for assembling some intergenerational session, an innovation for this congress. As reported in Science in 2005 by Roger Guimerà et al, "Team Assembly Mechanisms Determine Collaboration Network Structure and Team Performance" thus newcomers provide the innovative ideas, the incumbents are "storehouse for the pool of knowledge", thus newcomers working in teams with incumbents (seasoned scientist) will likely produce epochal ideas and breakthroughs teams made only of incumbents will not. Young and seasoned scientists working together generate epochal ideas.

The Capital of Knowledge moves from Athens-where the muses conferred creativity to humans-to Naples where the body of the siren Parthenope, daughter of Achelous and the muse Terpsichore, won by Odysseus' creativity, was buried.

We thank the Hellenic Society of Cardiology and its President Professor Dr. Ioannis-Georgios Kanakakis, FESC, for hosting the abstracts in Journal of Hellenic Cardiology.

Naples and its surroundings capturing beauty and cultural heritage - represent an additional reason to come and help making our congress a success.

Vincenzo Bonavita, Co-chair of the Congress

Luigi Campanella, Secretary of EAPE

Dennis V. Cokkinos, A Founder of EAPE

Natale G. De Santo, EAPE President, Co-Chair of Congress

Dear Colleagues,

It was on Sept 30 2016, when the founding congress of the European Association of Professors Emeriti was held under the auspices of H.E. the President of the Hellenic Republic Mr. Prokopios Pavlopoulos in Athens. The European Association of Professors Emeriti has been founded to include Emeriti and retired Professors from all European Universities – and corresponding members from non – European Universities in order to continue to contribute to the growth of academic excellence of the university. Since then European Professors emeriti exchange knowledge and ideas stemming from various scientific sectors cooperate actively among European scientists across various academic fields via the organization of meetings, colloquia or conferences of interdisciplinary and intra-cultural interests and the creation of a “Think Tank”. Their task is really valuable:

- They collaborate in conducting research projects or in producing and publishing meritorious scientific work
- They submit proposals to the relevant European authorities with respect to the study of issues related to graduate and post-graduate education or offering courses to the general public with a view to contributing to restructuring curricula or other sections of learning, where such needs exist.
- They provide moral, scientific, legal counseling and material support to colleagues and their families and also to every needy individual.

The 1st International Congress of the European Association of Professors Emeriti under the main theme “The Capital of Knowledge” was a success. More than 100 colleagues participated. All the communications were very interesting and important time was kept very precise. It was organized in Athens, from May 30 to June 1, 2019.

Today I have the honor as the President of the Hellenic Society of Cardiology to welcome you in Naples to the Second Congress on The Capital of Knowledge of the European Association of Professors Emeriti that will take place on April 2022. I wish you to enjoy this very important meeting and elucidate the scientist of all fields with your wisdom and knowledge.

John Kanakakis
President HCS

ABSTRACTS OF LECTURES

COVID-19 SYNDemic, A NEW CONCEPT IN PUBLIC HEALTH

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The pandemic of Covid-19 has emerged in 2019. Its lethality rate (deaths / symptomatics) is estimated at ~ 0.5% in Western countries and up to 1-2% in several Southern countries. The rapid identification of the coronavirus SARS-Cov-2 allowed rapidly to develop diagnostic tests and to design very effective vaccines. In the 1990s, the anthropologist Merry I Singer introduced the innovative concept of syndemic, which opens new and global perspectives in the epidemiological approach to pandemics, such as AIDS, tuberculosis and malaria. A syndemic disease is characterized by the intertwining of biological, sociocultural and environmental factors that can aggravate the mortality rates of these diseases. A pandemic cannot be reduced to the interaction between a virus and a population. Its management must take into account the health status of populations, living conditions, cultural contexts, mentalities, behaviors, as well as the social, political and economic forces at play. The concept of syndemic applied to Covid-19. This pandemic is superimposed on other contagious diseases (AIDS, malaria, tuberculosis) and also to genuine non-infectious pandemics (diabetes, obesity, cardiovascular diseases, cancers, malnutrition...). These chronic diseases contribute to the mortality rate of Covid-19, which mainly affects the elderly people and high-risk patients. The concept of syndemic also includes sociocultural determinants that play a major role in the development of Covid-19, which suddenly highlights the social disparities and the inequality of exposure, particularly the promiscuity linked to cramped housing and precariousness. Moreover, the emergence of this pandemic creates stress and fear leading to the stigmatization of patients and their contacts, denial of the pandemic, rejection of science, disinformation and fake news that

create an irrational suspicion that can lead to violence. Fear is also related to social isolation induced by barrier measures and lockdown, with consequences for the mental health of individuals. Indeed, the Covid-19 pandemic has a strong impact on mental illness, including children, and an increase in suicide rates. In addition, the robustness of the health and social assistance systems, which depends on long-term political decisions, plays also an important role on the consequences of Covid-19. This syndemic approach opens new perspectives in the management of major health crisis that must be considered globally, not only at the level of a country but at that of the whole world. It highlights the importance of socio-economic, behavioral and environmental factors, including climate changes and air pollution, on the evolution of the pandemic.

CARDIOLOGY IN THE 21ST CENTURY

Dennis V. Cokkinos

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The past, 20th Century, in which most of us pursued our activities, was a very good era for Cardiology and cardiac surgery, bringing cardiac catheterization, coronary arteriography, coronary care units, open heart surgery, pacemakers, defibrillation, ablation and Interventional Cardiology, together with new drugs.

The past Century can be seen as the triumph of analog technology.

In the 21st Century we are moving to the digital era, characterized by artificial intelligence, machine learning and precision medicine, molecular mechanisms, gen- and the many other -omics, high-throughput techniques, genetic editing, and many others which cannot be readily guessed, given the fact that medical knowledge currently doubles every 13 months; this trend is expected to further increase.

Predictions can easily be proven wrong. However, I would venture the following expectations: Heart surgery and interventional cardiology will decrease, the former to a greater with a new focus on valvular lesion corrections.

Lipid-lowering, molecular interventions will combat atherosclerosis and its sequelae. In heart failure and also, in arrhythmias, cell therapy will finally come of age under many new guises. Cell death of the myocardium will be prevented and a new facet, Anastasis -rising from the dead- will be encouraged.

However, all these therapies are costly. Financing will become a major problem, necessitating a multi disciplinary approach.

Human survival has increased very strongly in the last century. However, it is becoming apparent that this improvement is stalling, and may be reversed by 2040; this trend has become apparent even before the advent of the COVID-19 pandemic which has already cost 5.5 M lives and a huge economic backlash.

However, every war, and this pandemic is already an Armageddon, inevitably brings progress. I remain confident that Cardiology, a major branch of Medicine, will overcome. Humankind a child of Heaven and the Earth will find means to answer to current challenges and will prevail. We, as senior teachers, have a responsibility to provide our experience and stoicity to help our fellow humans by offering information, encouragement and wisdom, but also by remaining active, continue our research and healing practices.

CLIMATE CHANGE AND THE CHALLENGE OF A RAPID ECOLOGICAL TRANSITION

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The issue of climate change and its impact on humanity can no longer be postponed. According to the latest IPCC report, changes observed in the atmosphere, oceans, cryosphere and biosphere provide unmistakable evidence of a warming world. In recent decades, key indicators of the climate system have reached levels not seen in centuries or millennia. The Mediterranean is at the center of an unprecedented climate change. Currently, the average terrestrial temperature of the region has exceeded 1.5°C and is intensifying on the one hand extremes of summer heat and

drought and on the other increasing the temperature of the Mediterranean sea and the dynamics of extra-tropical cyclones. In this context, the climatic scenarios foresee already in 2030 the exceeding of the 2°C threshold and therefore an intensification of the climatic extremes. For the Mediterranean, it is therefore of fundamental importance to act urgently to secure strategic sectors of the economy and society, making production and nature infrastructures more resilient to climate change. The Mediterranean has various vulnerabilities in relation to climate change: hydrogeological instability, agricultural production, urban areas, natural areas, coastal areas and port infrastructures. Regional and local institutions are crucial for the implementation of the climate change adaptation strategy. The ecological transition of society needs continuous dialogue with citizens and local communities in a path of co-creation of the future society. Significant progress has been made in climate research thanks to new super-computing tools and advanced modeling for climate risk prediction and the creation of decision support systems for planning technological investments for adaptation. The integration of the most advanced scientific knowledge with territorial response policies to combat climate change is the only strategy possible today due to the dimension and urgency of the problems which, despite having a global dimension, have a decisive impact on life and development of local communities.

ABSTRACTS ON ACADEMIES

ACCADEMIA PONTANIANA:

A BRIEF HISTORY

Giuseppe Marrucci

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As long ago as in 1443, Alfonso V of Aragon, new King of Naples founded the Pontaniana academy. After the king, the second President of the Academy was the humanist and literary man Giovanni Pontano, from whom the academy takes

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its name. However, just a century later, in the troubled times of the Protestant Reformation, the Academy was felt as politically dangerous, and it was suppressed by the Spanish Vice-King, Peter from Toledo, in 1542.

The Pontaniana Academy was born again more than two centuries later, in 1808, when the Neapolitan Kingdom was part of the Napoleon Empire. In the new atmosphere of freedom, a group of intellectuals under the leadership of Vincenzo Cuoco re-founded the academy, which then succeeded in surviving the Restoration, i.e., the coming back of the Bourbon King. The Pontaniana Academy went on successfully up to the present days, with the only exception of difficult times in the last years of the fascist regime, resulting in yet another suppression, followed by a second restoration under the Military Government of the Allies in 1944.

Today, the Pontaniana is made up of the following five classes: Pure and Applied Mathematics; Natural Sciences; Moral Sciences; History, Archeology, and Philology; Letters and Beaux Arts. The academicians of the five classes meet once a month, all together, to favor communication among the different disciplines.

THE NEED FOR A UNIFICATION OF "KNOWLEDGE" IN MEDICINE TO PROTECT THE PATIENT

Goffredo Sciaudone, Carlo Melodia

Università degli Studidella Campania Luigi Vanvitelli
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Eurispes and WHO data from 2019 revealed an increasing demand for unconventional medicines: 600 million citizens and about 500,000 doctors in the world. In Italy, the practice of MNC is the exclusive responsibility of the surgeon registered in the professional association and the remedies are on AIFA lists. From this situation the need of health professionals for a multidisciplinary training emerges in order to overcome the limitation of the specialist areas of competence, for a unitary vision of the patient. We will retrace the historical events that saw Naples (1821) as the first city in Europe to meet homeopathy and to introduce it into the Academy of Sciences (1822),

then to spread it all around the world. From the 1980s, in Italy the need for a cognitive investigation into homeopathy emerged, also to fit in the European reality. We were actively supported by many Institutional Authorities who had understood the need to recover the figure of the patient in his state of illness. For this purpose and motivated by the exclusive ethical interest, we have been engaged in the training of the homeopathic doctor using, in addition to a group of classical homeopathy teachers, also a large number of University Professors, not only of medical disciplines, to guarantee a judgment skills at the service of the patient according to Hippocratic indications.

THE COMMUNICATION OF SCIENCE IN A PANDEMIC

Professor Sir Adrian Smith PRS

Università degli Studidella Campania Luigi Vanvitelli
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The past two years have seen science thrust, very publicly, into the very heart of all our societies. Virology, Epidemiology and complex mathematical modelling have moved from the scientific journals to the front pages of national newspapers and websites and led all news reports. Science has been celebrated for the speed at which it provided understanding of the virus and the scientific community has been lauded for the success of treatments and ultimately for delivering vaccines that have changed the game. However, there have been major challenges to how we communicate science and the inherent uncertainty that lies at the heart of the scientific endeavour. In a time of crisis people want certainty and they often think that is what science is about. They think of the lists of scientific laws they learnt at school. But science, particularly at the cutting edge, is all about uncertainty and it is vital that people understand that. It is vital that scientists communicate not only what they do know, but how confident they are in that knowledge and importantly what they do not know. We also need our media and opinion leaders to accurately reflect what the scientists are saying. Many policy makers initially used a mantra of 'following the

science' as though somehow there was a simple set of instructions and that if mistakes were made it was the fault of 'the science'. Of course, 'the science' does not exist. A little over two years ago, no one had heard of COVID-19. A huge, open, international collaboration sequenced its genome with amazing speed but today we can still not predict where or when significant variants will emerge or what they will look like. The exposure to so much scientific information for so many people will have raised the general level of scientific literacy and that is a good thing – it will hopefully have not just allowed people to gain knowledge but also to gain an understanding of how that knowledge was acquired and what its limits are. That will be the measure of how well we have communicated science in the pandemic.

ON THE ORIGIN OF BIOGEM

Ortensio Zecchino, President of Biogem

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In my third age, for a chance, I had the gratifying opportunity to give life to a small-large enterprise with high scientific and social value. In the mid-nineties, when I chaired the Senate Culture, Education and Scientific Research Commission, with Gaetano Salvatore, my beloved friend and renowned physician, and Renato Dulbecco we submitted the proposal for a biology and molecular genetics institute. With Dulbecco's support, I suggested to build it in Arianoirpino, my home town.

Our project was eventually selected, and Biogem consortium was born in 1997, soon after the unexpected death of Gaetano. At that time I considered my work done, but in 2004 I was asked to get the responsibility for Biogem, which had huge difficulties in starting its activities. Thus I found myself living a bet that is daring and stimulating at the same time.

Even if only half of the structure was ready, the institute was opened in 2006 at the presence of Rita Levi Montalcini. During the following years we have been working hard in order to complete the structure and to develop scientific activities,

trying to make Biogem not only an important biomedical research centre, but also a cultural institute operating in a very suburban area. A Museum of Earth and Life History has been created, and Biogem organizes a yearly meeting, "The two cultures", in order to facilitate the dialogue among scientists and scholars in the humanities.

Biogem has got important endorsements, including from several Nobel Laureates, and it has been visited by the President Sergio Mattarella in 2018.

THE CRISIS OF OUR AGE AND THE ITALIAN INSTITUTE FOR PHILOSOPHICAL STUDIES

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We live in an age of big changes in all fields of human activities, from economy to spiritual expressions. In front of these changes we are disoriented, we lack of reference points. In order to overcome this condition we need philosophy. As Plato said, we cannot operate well, in adequate direction, if we are not aware of what is good. Theory must come before action.

Philosophy is a creation of the Greek civilization, which was inherited first of all by Europe, but it is a common possibility of the whole mankind because it is grounded on reason, a common treasure of the human being. But philosophy has become a specialist discipline of academic organization of knowledge and has no goals in the public life. This is the reason why, in 1975 the Neapolitan Avvocato Gerardo Marotta 1927-2017 founded the Istituto Italiano per gli Studi Filosofici. The Nobel Prize in Chemistry and Honorary President of the Institute Ilya Prigogine wrote: "I can say that the rapprochement between physical sciences and the humanities has been facilitated thanks to the Italian Institute for Philosophical Studies. The Neapolitan Institute is an example of such rapprochement in the name of humanism. The institute, in fact, studies the traditional problems of philosophy as well as the classical

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problems of science. In this sense, the Neapolitan Institute plays a very important role in Europe". The Institute aims at expanding philosophical culture, by blending the major European tradition, but it promotes, alongside philosophical studies, all studies that can contribute to elaborating inherent problems and finding solutions in the spheres of various scientific disciplines, with the contribution of experts of every country in the world.

MANMADE CLIMATE CHANGE AND THE WORLD CULTURAL AND NATURAL HERITAGE

Christos Zerefos

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Following the recent IPCC report in 2021, there is high certainty that global warming is proceeding faster than thought before. This resulted to the destabilization of our climate, seen clearly in the past few decades by the increase in the number and intensity of extreme weather and geophysical events. As a result of that, cultural and natural heritage became increasingly vulnerable to the adverse effects of global climate change. This unfortunate consequence of climate change has not yet been systematically integrated in global climate change mitigation and adaptation estimates. There is an immediate need for action before the damage to our common heritage becomes irreversible. In this work examples of climate-related damages seen on our natural and cultural heritage are presented. The analysis presents results on climate changes of extreme events indices at 275 UNESCO cultural and natural heritage sites in the Mediterranean. Regional model simulations from Cordex EU project have been used to estimate the changes of extreme precipitation frequency, the fire weather risk index and mean sea level rise at coastal sites in the Mediterranean. The analysis has been done under two climate change scenarios namely RCP4.5 and RCP8.5 for which the changes between 2071-2100 relative to 1971-2000 have been calculated. It has been found that the vast majority of UNESCO heritage sites in the Mediterranean are threatened in a destabilized climate.

SUBMITTED ABSTRACTS

BIOLOGICAL COMPLEXITY: THE NEXT FRONTIER FOR SCIENCE AND KNOWLEDGE

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Till the beginning of the twenty-first century, research in the life sciences has been guided by the reductionistic, Cartesian approach, which requires to disassemble the whole into its components, each one of which is then characterized by the best available technologies.

The DNA-centered molecular biology has thus been able to accurately describe most of living cells components, but it fails to explain the molecular basis of complex physio/pathological functions. How to develop data-driven science? Use algorithm to search correlations between sets of data or try to develop a systems approach, able by using mathematical models to account for the dynamic behavior of the involved complex network?

A systems approach accounts for many interesting proprieties of living beings, which are not detected by the reductionistic approach: the relevance of the interactions among various molecular components; the fact that the functions behave as "emergent proprieties"; the non-linearity in the input/output response; the presence of a circular causality, instead of the linearcausality found in simple sets; the variable effects of stochastic events on the dynamic of the system, often quenched by built-in anti-chaos molecular mechanisms; the presence of hysteresis in several responses to perturbations; the relevance of the context on the behavior of the system. Besides, it is possible to apply systems approach by considering the various organizational levels, from organisms down to molecules, so, for instance, use the basic rules that govern a level to constraint the construction of the molecular model in the level below.

Metabolism has been shown to characterize, as a fingerprint, each physio/pathological function.

Therefore the construction of predictive mathematical model of metabolism, sustained by Artificial Intelligence tools, is expected to mightily increase our understanding and control ability for many diseases.

Since biological systems have been optimized by natural selections, it is expected that regulatory designs, uncovered by systems biology, may be useful to fulfill the need for new strategies required to deal, in more effective ways, with social and regulatory issues.

VACCINATION AGAINST COVID-19. WHICH VACCINE TO SELECT?

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The production of vaccines against Sars-Cov-2 virus began as soon as its sequence was known and evolved rapidly. The successive steps to put on the market the vaccine, exploratory studies, pre-clinical and clinical trials, European and national licensing, mass production and distribution took one year instead of 10-15 years. Six types of vaccines were developed or are under development: mRNA vaccines, protein vaccines, DNA vaccines, vaccines with an adenovirus, an inactivated or an attenuated virus. The mRNA vaccines are produced in vitro using a DNA sequence encoding virus Spike protein, and RNA polymerase. Being fragile, they must be inserted in a lipid nanoparticle, have a high immunogenicity and do not enter the nucleus. Vaccines with adenovirus are genetically modified adenoviruses in which the DNA sequence encoding protein S was introduced, that infect human cells, but are harmless. They allow a large scale production, but their utilization fell due to the rare outcome of side effects and a lower efficacy than with mRNA vaccines. Protein vaccines using protein S as an immunogen are produced by transfecting the sequence encoding this protein in cell cultures. They are in preclinical development. Vaccines with an inactivated virus are no longer infectious but antigenic. They show a broad immunogenic power, but make virus manipulation necessary. Other vaccines (DNA vaccines, live attenuated virus and

vaccines derived from virus causing other diseases) are still in development. In conclusion, vaccination allowed the pandemic to be stopped in several countries. Main challenges persist: emergence of new variants, unawareness of immunity length, possible occurrence of new post-vaccination complications, necessity to vaccinate the whole world population.

RELEVANCE OF THE PERSON'S IDENTITY AND THE ALTERITY OF MASKS

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In the classic Italian Commedia dell' Arte, the key - characters reveal reference trades, social functions and life course transitions confronted with their criticism. Mirroring reality, Commedia dell' Arte allows human beings to act behind specific masks hiding their proper features and expressing their characters' caricatures. Masks have probably always separated people from people in order not to get contaminated by vices but choose only virtues; they usually protect actors' own identity, mediating knowledge, understanding, satirizing morals, and are sometimes interchangeable. Old age brings about such a dynamic change in humans; it is such a mask sometimes associated with a sort of social and professional isolation or emargination. Yet the elder illustrate a valuable, even though entropic, capital of wisdom and skills. They are living -implicitly subjective - witnesses of historical events and part of the living treasures of mankind, integrators for dissipative systems. Linking past and future to present, facing the threats of rigid gerontocracy and the benefits of fruitful and protective mentorship, the professors emeriti have constantly to regain their role, position and vocation under the contemporary world circumstances, balancing high standard technologies, ethics, humanistic and humoristic approaches. Once again the ongoing pandemic has outlined the medical vulnerability of this age group, often looked at as a financial burden. Hence a sort of

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compensatory positive discrimination has emerged, supposedly for not confusing the Greek terms “γέρος” (old) and “γερός” (healthy). Seemingly now the metaverse challenges Magnificent Doctors to reconsider the metaphysics, opportunities and perspectives of a transhumanist post human society.

GEORGIOS GEMISTOS "PLETHON": AN EXCEPTIONAL GREEK SCHOLAR AT THE 1438 FLORENCE COUNCIL AND HIS INFLUENCE IN ITALIAN RENAISSANCE

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Georgios Gemistos "Plethon" (1355/1360-1452) apparently was the last of the ancient (pagan) Greeks.

He captivated Italians during the Ferrara-Florence Council for the Unification of Eastern (Greek Orthodox) with the Western (Roman Catholic) churches. Although it was a struggle for an East-West European Union at Ferrara and Florence, while promising, never bore any fruits. The western nations were not eager to support the Byzantine Empire. Nonetheless, there were only a few exceptions and this led to the fall of Constantinople in 1453.

As a lecturer and prolific author, Plethon, who had been invited by the Emperor to join the Council, he was there as a chief pioneer for the revival of Greek Scholarship in Western Europe. He reintroduced Plato's ideas and influenced Cosimo de Medici into founding the Accademia Platonica in Florence, which contributed into the latin translation of all existing Plato's works.

Plethon lectured on the differences between Plato's and Aristotle's influence over Western European thought and was considered as one of the most important influences on the Italian Renaissance. Plethon's ideas formed a mixture of Stoic philosophy and Zoroastrian mysticism.

He believed that the universe has no beginning or end in it, being perfect, and nothing could be added to it. The most important legacy of the Council were the lectures on Greek classical liter-

ature delivered by several of the delegates from Constantinople, which included Plethon and his disciples. Actually after settling in Mystra for the last 40 years of his life, Plethon taught and authored on history, philosophy, astronomy and geography, while compiling digests of several classic authors.

There is a coincidence between the first century of the Italian Renaissance with the last century of the Byzantine Empire. It is believed that the historical development of contemporary Europe occurred through the 15th century. Plethon was a part of it.

ORGAN DONATION AND TRANSPLANTATION IN EUROPE: HOW FAR HAS IT PROGRESSED?

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The shortage of organ donation and the consequent organ transplantation in Europe need important interventions including multidisciplinary approach and efforts to increase the percentage of donors.

The international response to that consists in the involvement of many important organisations such as the World Health Organization, World Health Assembly and many other European scientific societies, all focused on an upward trend in transplantation rates from deceased donors.

In Europe Spain has registered excellent results thanks to national transplant organisations, transplant donor coordinators, physicians and nurses. Other European countries show some difficulties depending on the local Health Organisation, low cultural levels in the field of organ donation and, with respect to deceased donors, a clear knowledge of cerebral death.

Many important factors are required to implement organ donation: cultural, religious, ethical and, above all, the innate inclination for donation.

All European countries must work together in order to increase the number of organs available for patients requiring organ transplants by adopting well systematic programs to give an answer to the increasing number of people who need an organ to continue to live.

An important role must be played by the registries in providing data on organ donation, geographic distribution, transplant activities and outcomes. Organ donation offers one person incredible power to change lives. Transplanted patients become more exuberant, they resume their previous working activity (90%) and a new, more vigorous and efficient social life.

DIAGNOSTIC ERROR AND CLINICAL METHOD IN NEUROLOGY

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A lecture on error is a lecture on the method, but can also be a lecture on error anatomy.

A suggestive error anatomy that starts from an assumption about the structure of human cognition and from a general review of the heuristic notion was proposed by D. Kahneman (Nobellaureate in 2002).

The assumption is that information processing in the human mind is governed by two different cognitive systems, which Kahneman simply identifies as system 1 and system 2. The operations of system 1 are quick, automated, associative, relatively difficult to control or change, and call for minimal mental effort. The operations of system 2 are, instead, slower, deliberate, serial, and rule-based; they can be more easily controlled or changed, but usually call for greater engagement in terms of focus and memory.

Following the introductory analysis of error anatomy, which is the subject of part one of the lecture, the following themes will be examined:

1. Teaching (while learning) and learning (while teaching) as crucial elements of scientific rhetoric: a three-party debate (problem, teacher, and learner) pursuing truth as a non-refuted conjecture;
2. the issue of utilitarianism or utilitarianisms in learning: a peculiar one is the utilitarianism of someone that learns in order to transfer the learning outcome to his or her community and, particularly, to suffering parties. This is what we refer to as ethical utilitarianism (of the

learner), the ethical utilitarianism of someone that learns (while teaching), but inevitably (remember the three-party debate?) the ethical utilitarianism of someone that teaches (while learning);

3. the relation between the general philosophy of knowledge and the experimental method as a sequence of conjectures and refutations;
4. the relation between intuition and hypothesis in scientific research and, thus, in clinical diagnostics;
5. the selection of hypothesis and the diagnostic paradigm; based thereon, the actual operations of a clinician that starts from conjectures originated from the initial story, continues at the onset by refutations via focused questions, and only afterwards with the search for clinical signs, functional disorders, single or multiple anatomical lesions, the aetiology if possible, and, finally, with refutation via non-invasive, before invasive instrumental investigations.

MEDITERRANEAN FEDERATION FOR ADVANCING VASCULAR SURGERY (Me.F.A.V.S.): PREMISE, AIMS, OPPORTUNITIES, ACTUAL SCIENTIFIC RESULTS

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On October 1st 2018, the Mediterranean Federation for Advancing Vascular Surgery, known by the acronym Me.F.A.V.S., was established in Naples by a group of 14 Founding Members. during the first International Constitutive Congress of this Federation. The reasons that led to the creation of this Federation are many and can be summarized in a table.

The main aims of the Federation can be listed as follows:

- Educational and common research projects
- Exchange of educators and experts
- Multi disciplinary and multicenter training for post-graduate fellows, residents and young specialists

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- Experience exchanges of care in open, endovascular and hybrid surgery
- Integration of curative therapies

Me.F.A.V.S. scientific activity is remarkable: two International Congress and five International Webinars organized from 2018 to November 2021. All sectors of vascular pathology and surgery are treated but the Executive Council of Me.F.A.V.S. unanimously decided that the main topic is: "diabetes and its complications" animated by the consideration that it is a disease with a strong clinical-welfare, economic, social and scientific impact pointing out that there are countries in Africa and the Middle East where the incidence of the disease is even 4 times higher than that recorded in European countries. A comparison of experiences across the board is therefore mandatory. Finally with pride and satisfaction, following a large Survey, they have already been published in journals with good impact factors not by individuals but by a large group of Me.F.A.V.S. the following scientific papers: several collective studies undertaken by our federation including a survey on management of diabetic foot; a major concern for all healthcare systems of the countries involved.

RIGHTS TO KNOWLEDGE OF EUROPEAN CITIZENS

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The General Assembly of the European Council constituted by 47 State members has discussed and voted the Report "Freedom of media, political trust and rights to knowledge of citizens" relieved by European Radicals and based on four base pillars: availability of political power to make accessible information and knowledge to citizens and to ensure the reliability of public and private media through the collection and analysis of data recovered by an independent body, the incentive to the diffusion of the science and knowledge sites, the warranty of the freedom of word as indispensable condition for a democratic country. To be informed means to be able to take part consciously to the choice moments and to forward proposals that can be evaluated by the public opinion. The

right to knowledge prevents from any dictatorial option. This right largely respected in Europe must be now extended to the countries overall the world starting from some East Europe and South America countries, first of all China that is growing well with a successful research, but that sometimes pushes forward in the dark and repression. The new technologies help to satisfy this request of sharing: in this direction didactics in vivo, diffuse museums, artificial intelligence, blockchain, thematic networks appear as real double face instruments: if managed in favour of communities play a virtuous role, while they become source of further discrimination if selfishly used. To avoid such danger it is necessary that politics assume their natural role to look for a balanced development of the society starting from education as basis of civil and social growths.

MENTAL HEALTH IMPACT OF DISASTERS: AVOID, MITIGATE OR JUST TOLERATE?

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Disasters can be classified in:
Natural Human made Economic Biological.
Yet, irrespective of type, there is always a human contribution to Disasters.
Human-made disasters have more frequent and more persistent psychosocial consequences and the effect of a disaster is greatly influenced by the meaning ascribed to the traumatic event.
In this presentation, the Mental health consequences are described, with special emphasis on PTSD, the predictors of psychopathology are mentioned, the role of mental health professionals is highlighted, the way of management of a natural disaster (Athens Earthquake, Sept. 7, 1999, 5.9 Richter) is described and the response of the World Psychiatric Association (WPA) to disasters is briefly presented.
The intervention of the WPA and the Hellenic Psychiatric Association with reference to the Middle East crisis is presented and the Athens Anti-war Declaration (2016) is discussed.

The keywords in the psychosocial management of the mental health consequences of Disasters are: Resilience (on a personal level) and Solidarity (on a social level)

It is concluded that Disasters have been with us since time immemorial and they will continue to be with us. We can prevent some of them, mitigate the effects of others and tolerate the rest.

We have to adjust our lives to them and learn how to live with them.

TOWARDS A HYDROGEN ECONOMY? WHERE WE ARE

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On Earth all large molecules contain hydrogen, the most abundant element in the universe. It has the highest energy density by mass, but the lowest by volume. As a fuel it produces only water, a perfect feature to combat climate change. However, hydrogen must be produced from other sources.

To date, designing a hydrogen economy means to assign to hydrogen a fundamental role to contribute to reach a climate-neutral economy. Hydrogen will be used to power mobility and supply electricity and heat, and to decarbonise industrial sectors, such as chemical and steel, allowing public health improvements but also employment benefits in various jobs [1].

In less than 3 years all technologically world leader countries have established strategies to produce, store, and use green hydrogen to reach a CO₂-free economy in the next 30 years. Green hydrogen production mostly means to use water as source and sun and wind renewable energy for allowing the thermodynamically unfavoured, energy intensive water conversion to hydrogen and oxygen inside electrochemical reactors (electrolysers).

We'll discuss assumptions and planned road maps to reach this goal and the expected diffi-

culties. Really, we start from the about 90 Mt hydrogen currently produced at very low cost almost exclusively from fossil fuels for chemical industry, causing 900 Mt CO₂ emissions, but accounting for only a small fraction of the world energy. Major critical issues are storage technologies, due to intermittent production of renewable energies, fueling stations for fuel cell mobility, safety and standardization rules, research and international cooperation, public incentives and private/public financial support.

[1] Energy, Environment and New Materials, Vol. 1-3, Marcel van de Voorde Ed., Berlin, Boston, De Gruyter 2021

THE CULTURE OF THE FOREST AND THE ROLE OF KNOWLEDGE

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The future of our planet depends on how we perceive, protect and manage our forests. In time, forests have been both reserve and resource, but starting from the Enlightenment, forest utilization became the object of scientific enquiry and forestry turned to mathematics and geometry to organize wood production. Thus the forest was considered only as trees which could be organized by management to answer human needs, adopting a reductionist and determinist scientific paradigm.

In the last decades there has been a change in the way forests are perceived. Forests are increasingly valued from the environmental and cultural point of view and as hift in the scientific paradigm has been promoted by the definition of systemic silviculture, which considers the forest as a complex adaptive biological system and takes into account the intrinsic value of forest ecosystems. By recognizing the "rights of the forest" the ethical principle changes from the present one which is still based on an an-

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thropo-centric view of the nature-humankind relationship.

In this perspective, systemic silviculture, by abandoning the output-oriented view of the forest, favor the conservation and management of forests as complex ecosystems, rich in values which are not only economic but also environmental, cultural and social.

In conclusion, there is the need for a “cultural maturity” based on knowledge, which considers forests for their intrinsic value. In other words, we must give forests a new dimension: the cultural dimension.

ETHICAL AND LEGAL ASPECTS RELATED TO THE CONTRIBUTIONS OF EMERITI PROFESSORS TO THE PUBLIC GOOD

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Society should support all members of the post-secondary academic community, both those currently employed and emeriti -as well as seniors in general- in their efforts to contribute to the public good. Beyond the individual efforts of retired professors, intergenerational collaborative learning and research, mentoring, and community initiatives are able to develop effective solutions to university challenges as well as to those of society at large.

Currently, however, the opportunities for emeriti and other retired professors to engage in public activities both inside and outside of academia vary widely. This paper will reflect upon the different realities faced by emeriti professors in Austria, Canada, Greece, Italy, Slovenia, and the United States. In doing so, we will review:

- a. Illustrative examples of various legal aspects and challenges affecting the desired contributions of emeriti to the public good
- b. Opportunities for emeriti to continue not only to contribute through research, teaching,

mentoring, and university level governance, but also to promote intergenerational academic cooperation

- c. Instructive aspects of the life of emeriti professors, from available services -including access to information technology- to sustainable mobility, to the ethics of old age.

Also included are some of the best practices of European and North American universities regarding support for emeriti and other retired professors as well as suggestions for minimal university standards. Our goal is to prepare a joint statement on the working status of emeriti professors and, additionally, to invite the EAPE leadership to prepare a memorandum on the issues highlighted in this paper.

NOTHOBRANCHIUS FURZERI: A TANKFUL OF OPPORTUNITIES FOR AGEING RESEARCH

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Ageing research has been progressing rapidly thanks to the contribution of preclinical studies conducted on research organisms. In the last decade, the teleost fish, *Nothobranchius furzeri*, also known African turquoise killifish, entered the area of powerful model systems to study vertebrate ageing. The popularity is due to its very compressed life cycle of a maximum of 45 weeks (depending on the strain), characterized by a rapid development, sexual maturation, and naturally fast-ageing process as part of its natural life history and is today the shortest-lived vertebrate that can be bred in captivity. Ageing in the turquoise killifish has been extensively characterized at both phenotypical and molecular level: several stereotypical ageing traits have been reported, including decline in reproduction, fertility, cognition, mobility, regeneration, and tissue homeostasis, along with increased incidence of senescence, neural and muscular degeneration, and cancerous lesions. Old turquoise killifish also exhibit molecular markers of ageing, such as a decrease in mitochondrial DNA copy number

and telomere length with age. The standardised housing and caring conditions as well as inbred strains, the availability of genomic and genetic tools, contribute to make *N. furzeri* a robust model for understanding vertebrate ageing and ageing-related diseases as well as examine the mechanisms favouring longevity, through different experimental approaches (i.e. caloric restriction; environmental stimuli; pharmacological interventions, etc.), or in longitudinal studies identifying keygenetic and environmental factors related to ageing.

ON THE ADMIRABLE AGING CREATIVITY OF ROMAN PONTIFFS REIGNING IN THE YEARS 1492-2005

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Recent studies have shown the potential of the lives of Roman Pontiffs to study the time course of diseases connected with lifestyles (De Santo NG, Bisaccia G and De Santo LS, 2018-2021). The aim of this work is to investigate on the creativity of aging popes reigning in the years 1492-2005. A total of 51 pontiffs were empowered at a mean age of 63.9 years (the youngest being Leo X, 37 years old), the oldest Clement X aged 76). Their average time in service was 10 years, average life span 73.6 years, the youngest being Leo X died at 45, the oldest being Leo XIII died at 92 (Retlief and Cilliers, 2005). It must be stressed that life expectancy in the general population only in at the beginning of the 20th reached in men 50 years.

Popes not only were responsible of the spiritual needs of Christianity, but had to care for the administration of the Vatican State, and were involved in European and World Politics, including participation into wars. They promoted innumerous European Universities, hospitals and academies. They also promoted poetry, literature, music and enriched Roma of churches and

palaces, and continuously refurbished the Saint Peter's Basilica with pieces of art and libraries. The number of artists they called to Rome is huge. For example Julius II to substitute the Old Constantinian Basilica built in the 4th century, worked with Bramante, Rafael, and Michelangelo, the project being completed a century later through the work of Sangallo, Della Porta and Fontana.

In conclusion Roman Pontiffs although enthroned in their aging years, kept their admirable creativity till the end of life.

DOGS AND VULTURES DEVOURING CORPSES OF VICTIMS OF PANDEMICS AND KILLED ENEMIES.

AN HISTORICAL REVIEW

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Homer starts his Iliad with "Sing, O goddess, the anger of Achilles son of Peleus, [...] and many a hero did it yield a prey to dogs and vultures [...]". Thucydides however noticed that carnivorous animals did not eat the corpses of people who died during the 5th century Plague of Athens, presumably because their stench turned them off. The same observation was made by Procopius of Caesarea during the 6th cent AD Plague of Constantinople, in contrast with John of Ephesus during the Alexandrian Plague. The 1984 epizootic epidemic revealed cannibalism of dead animals by dogs and foxes. Today, scenes with dogs chewing dead corona victims buried superficially or still on hospital stretches are not rare in India. On the other hand, trained dogs are used to identify corona carriers by their odour. Similarly, with a view to the post-mortem humiliation of killed enemies, executed criminals or rebels, their corpses were left unburied, prey to animals. Homer continues: "Then answered Priam, [...] or has Achilles hewn him limb from limb, and given him to his hounds?" Sophocles refers to this practice in his tragedy Antigone. Later it was common for the legs of crucified victims to be eaten by dogs and their arms by vultures, while still on the cross. We conclude that

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animals collaborated with humans in clearing away those that succumbed either to pandemics or to State violence.

THE ELDERLY AND CHILDREN

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We say that everything is changing very fast, technology has entered our lives. A lot of action has been taken up by machines, phones, video and computers. This as good as it is for humanity but it took away the most important thing - communication.

And we are human and that is the most important thing for us - human communication.

The changed conditions to protect the health of people and the lives of our children has taken away communication. Now children go to school by cars and return home again by cars. No more playing in front of the apartment building, in front of the houses or in the neighbourhood.

They only communicate through their phones and the internet. And where are the old people stay. The grandfather, grandmother and grandchild relationship is about to disappear. And the last years they are seen only with masks. Fear, fear of contagion, covidity and death. There's a lot to talk about on this topic. A topic that is not insignificant at all. Deprivation of the opportunity for communication, intimacy, love and tenderness. Passing on ancestral traditions.

This is what I touched on in my report on the subject. Everyone has something to say. It is a subject that is of concern to a generation that is passing away.

HOW THE PANDEMIC HAS EXACERBATED EDUCATIONAL INEQUALITY

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In recent years the unequal distribution of opportunity in education has been recognised as a

major issue for democracies. Most countries have initiated programmes to improve access to education for disadvantaged groups recognising this to be essential for economic growth, social cohesion and human rights. There has been some progress in reducing inequality or at least preventing it from growing further. This lecture will discuss how these inequalities have been affected by the COVID-19 pandemic.

All areas of education have been affected by COVID-19 sickness and related public health precautions, particularly by the absence of 'face to face' teaching during lockdowns and school closures. A 'digital divide' exists both in school and university environments where access to on-line learning is more difficult for poorer students with less access to appropriate devices or broadband, especially in multi-learner households. In a home-schooling situation, the level of parental education and access to parents is important. Evidence will be presented of the increased educational inequality which has resulted, with examples from around the world. It is clear that the main impact has been to exacerbate existing inequalities and to set back progress made in recent years in overcoming educational disadvantage arising from poverty, social class, gender, ethnicity or location. Ways of ameliorating some of the worst impacts will be discussed and potential supportive roles for retired academics suggested.

THE MEANING OF LIFE: CHILDREN'S AND OLDER PEOPLE'S PERCEPTIONS AND FEELINGS ABOUT MATURITY AND WISDOM

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This review examines the life domains of youth and old age that pose philosophical questions about maturity and wisdom. Our presentation considers the role of children and the elderly as a socially relevant category at the intersection of collective sense of life under the aspect of culturally organized value and competence and in-

dividual sense perceptions as sensory and perceptual endowments. Within the framework of this distinction, perceptions, feelings and sense-making will become the object of our empirical understanding of the role of the young and old generations in society.

Perceptions, feelings, and sense-making of a society are used by the faculties of seeing, hearing, feeling, and thinking in everyday life in different ways depending on age: 1. both as communication opportunities and burdens, 2. as carriers of information about reality, 3. as mediators between people's minds and their external world, and 4. as inter-actors between young and old. In this presentation, the mental development of children and of elderly as members of society is examined and extended to other areas, such as the identification of the child and the elderly as philosophers and bearers of rights and values, and as makers of meaning in human life.

STARTING THE DEBATE ON ACADEMIC FREEDOM IN EUROPE AT THE TURN OF THE MILLENNIUM

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The project "Safeguarding Academic Freedom in Europe" showed that the legal protection of academic freedom in Europe leaves much to be desired. Academic freedom in universities enables scientists to engage in controversial research and critical inquiry concerning complex scientific projects. It creates a scientific atmosphere to advance human knowledge in sciences and to protect the well-being of scientists. Academic freedom includes the right of scientists to practice research and publish the obtained findings regardless of prevailing opinion, prescribed doctrine, or institutional preferences. It includes the freedom of researchers to express their critical opinion about workplace institutions and public issues. It is difficult for researchers to determine the incidence of endangered academic freedom at the European level. Due to a lack of publications and other documentation, it is a great chal-

lenge and to identify and prove causal relationship of risk factors with the degree of violation of academic freedom. Therefore, anonymous reports from Professors Emeriti may report the links between endangered academic freedom and management failures.

This presentation survey wants to open the debate on academic freedom at different faculties of European universities at the turn of the millennium. I propose to ask retired professors and members of EAPE to anonymously report their general experiences and specific conclusions in a survey.

Questions and answers of the questionnaire will be discussed in Naples and published in the EAPE Bulletin.

CORONA, A CHALLENGE TO ETHICS IN SCIENCE

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Since two years, the world is under the rule of the pulmonary disease Covid-19 caused by new variant of Corona viruses, a well known viral family. A disease of such sort raised attention in mid-December 2019 by reports from a fish market in Wuhan/China, continually rising to higher levels of concern by television reports about strict quarantine measures taken by the Chinese authorities in February 2020, followed by the declaration of a pandemic by WHO in March, and photos of military trucks supposedly transporting Corona victims from Bergamo to nearby crematories on 18 March 2020. All this resulted in an unprecedented international effort in scientific research to understand prevention, etiology, and treatment of the disease as well as to develop means to suppress its negative economic consequences.

The immense scope and international relevance of this problem raises questions of how to adequately cope in the future with such pandemics, at first biomedical problems spreading and rapidly growing into multi-faceted questions of sociological, economic, legal, and political

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dimensions. The Covid-19 pandemic demonstrates the need for judicious integration highly specialized scientific fields (e.g. virology, epidemiology, immunology, medical therapeutics, public hygiene, etc) to arrive at balanced recommendations for dealing with such infectious diseases. It is interesting to note that -in spite of great advances and high scientific expertise in all sub-disciplines involved- considerable controversies exist between experts and specific groups about the most effective measures to overcome the pandemic. Is it perhaps the consequence of excessive ambition and competition, an ethical problem?

THE TRANSITION TOWARDS THE ECOLOGICAL MODERNIZATION OF SOCIETY: WHICH CONTRIBUTION OF EMERITUS PROFESSORS IN THE CONTEXT OF THE KNOWLEDGE ECONOMY?

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1. We live in the era of the knowledge economy: development is becoming independent of natural resources and more dependent on science, technological innovation and knowledge. They become the very heart of any strategy aimed at addressing the transition to ecological modernization and to meet the challenge of climate change, energy, water resources etc. But knowledge also means having a vision of the world, a mindset that is reflected in lifestyle and culture. We are more and more hyper-connected, but in reality we are disconnecting from each other and from Mother Nature, to the point of perhaps compromising her own evolutionary dynamics. We need to make choices in a new and wise way.
2. In this society founded on the economy of knowledge, human capital becomes fundamental to trigger change in the "right" direction. The formation of human capital becomes the central issue today in order to meet the new challenges. The education of

young people appears to be of absolute urgency. The elaboration of new technical/scientific knowledge is required, together with offering interpretative criteria of the current reality and its evolutionary dynamics: for critical discernment, offering a vision of a desirable future, based both on technological innovation and on the recognition of intrinsic values. Increasingly, intangible/immaterial values will have a decisive importance in current behavior, choices and perception of well-being.

3. The contribution of emeritus professors can be proposed in this twofold direction aimed at producing new knowledge of excellence (to achieve the objectives of the 2030 Agenda) and also the ability to critical discernment, to promote the value of autonomy and freedom together with responsibility: to reshape the values of solidarity, inclusion, community, that are the core that holds together a society: to promote cooperative capacity and wisdom.

INTEGRITY OF SCIENCE, THE INFORMATION INDUSTRY AND THE MYTH OF EXCELLENCE

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There is increasing concerns about the integrity of science, whose pillars are openness, reproducibility and lack of conflicts of interests. But today openness means to pay to publish, reproducibility is an option, and lack of conflict of interest is hard to control. The scientific publishers, the so-called "information industry", push for increasing the number of author-paid publications, irrespective of quality, and offer authors promotion of their work. At the same time governments push for accountability and "excellence": taxpayers must know what it is done with their money, but quality is difficult to quantify, so everything is bound to the journal reputation (impact factor) and self-promotion. Nature Publishing asks for about 9000 EUR for an open access paper into the main journal, accepts advertise-

ments from industries and Universities, and building on its former reputation, has multiplied its portfolio: there are about 60 journals dubbed “Nature Something”. However, according to a survey made by Nature itself, about a half of respondent said they were unable to reproduce their own results. Fraud and plagiarism are also rampaging: Young researcher, with their career and funding bound to this myth of productivity and excellence, are pushed to bypass science integrity, as “to appear” is more important than “to be”. However, this is the way they are being educated. The above described self sustaining vicious circle is damaging science and the people’s trust. Scholarship and mentoring from Emeriti should be recognized and valorized to restore value to science as a cultural, and not economic achievement.

ZEBRAFISH: A MODEL ORGANISM FOR STUDYING THE FOCAL SEGMENTAL GLOMERULOSCLEROSIS

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Zebrafish (*Danio rerio*) is a fresh water fish that in the last few years has emerged as an attractive vertebrate model to study kidney development and disease. There is a close functional analogy between zebrafish and mammalian kidneys. Since zebrafish larvae develop quickly and can be bred to become transparent, in vivo observation of these animals is possible. At 48 hours post fertilization, zebrafish larvae develop a single glomerulus which is attached to a pair of tubules. Like in mammals, the glomerular filtration barrier consists of a fenestrated endothelium, the glomerular basement membrane and interdigitating podocyte foot processes bridged by as lit diaphragm.

By using genetically modified zebrafish strains with fluorescently labeled podocytes, it is possible to study alterations of the glomerulus during the development of renal disease like Focal Segmental Glomerulosclerosis (FSGS). FSGS is characterized by podocyte loss, the effacement

of their foot processes as well as scarring of the glomerulus. To study FSGS in zebrafish larvae, we induced podocyte detachment by the use of a zebrafish strain expressing the enzyme nitroreductase converting metronidazole into a toxic substance specifically in podocytes. We observed severe podocyte foot process effacement of remaining podocytes and characteristics indicating that glomerular response to podocyte depletion in larval zebrafish resembles human FSGS.

The aim of our study was the identification of mRNAs as well as miRNAs that were significantly regulated after the onset of disease. Detailed knowledge of these mRNAs and miRNA-based generegulation will help to uncover the pathomechanism as well as to develop therapeutics for the treatment of FSGS.

INNOVATIVE APPROACHES TOP REVENT FRAILTY: OVERCOMING BOTTLE NECKS TO VALIDATION AND SCALE UP

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Public health has been facing number of challenges that have been exacerbated by the persistence of the Covid-19 pandemic, and can be addressed only by joint international efforts. Our capacity to target specific interventions towards specific populations is progressively being improved by our understanding of human and disease biology, and by the advancement of modern diagnostics and therapeutics. Risk assessment through genetic testing, lifestyles interventions for health promotion and disease prevention, early detection of disease, integrated care and service coordination represent the steps of a multifaceted system where innovative solutions contribute to improve effectiveness and increase accuracy and speed of diagnosis, decrease burden and cost.

The availability of healthcare data facilitates the set-up of personalized services and collect outcome data from real world and clinical trials, but

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there are still several gaps to address to integrate digital solutions into current processes of health service provision.

There are several challenges and enablers that hinder the transfer and scale up of validated innovative solutions for health from different perspectives (technological, organizational, educational, clinical, social perspectives). Our experience in the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) provided the opportunity to take advantage of several instruments made available at international level, to facilitate the design, testing and adoption of innovative solutions for active and healthy ageing. An example is represented by the European Project for personalized ICT Supported Service for Independent Living and Active Ageing (PERSSILA A project), that resulted in a good practice that ignited several international twinings adapting specific tools to our local context, and feeding into innovative procurements.

CFD IN ENVIRONMENTAL ENGINEERING AND RISK ANALYSIS

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This paper describes the mathematical modeling and associated computers emulations of environmental problems related to flow and heat/mass transfer. Many key “issues” in designing environmental protection systems, and in performing environmental risk assessment and control, are related to the behaviour of fluids in turbulent flow, often involving more than one phase, with chemical reaction or heat transfer. Computational-Fluid-Dynamics (CFD) techniques have shown great potential for analyzing these processes and are very valuable to the environmental engineer and scientist, by reducing the need to resort to “cut and try” approaches to the design of complex environmental-protection systems and to any relevant decision - making process. Multi-dimensional, multiphase dynamic models for the dispersion of air, water and soil pollutants and for the prediction of environmental risks are presented. Re-

sults using model simulations are presented for some cases of atmospheric and marine pollution, as well as for the environmental risks of fires and of petrol-tank explosions. It is concluded that the results are physically plausible and can be used with confidence. Air, water and soil management systems can be improved by the application of these computational prediction techniques.

RECONCILIATION: THE MODERNITY OF SOPHOCLES' PHILOCTETES

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The aim of this work is to illustrate the need for a generation alp act in order to achieve a true progress for humanity, through Sophocles' extraordinary tragedy (a drama of “reconciliation”): Philoctetes. Only through the friendship between Philoctetes and Neoptolemus, between the mature archer and the young son of Achilles, Troy might be conquered.

It is not Heracles' bow, which the demigod gave him before dying, that makes Philoctetes a fundamental hero, but his wound on the ankle, which is purulent and cannot heal.

Those who have lived intensely, who have fallen, not standing up to the impact of life, and have found the strength to get up again, must stand by the side and communicate their beautiful and painful experience in friendship to the younger generation, helping them to grow harmoniously.

LIFE AND ACADEMIC ACTIVITIES OF PROFESSORS EMERITI AND RETIRED PROFESSORS ON UNIVERSITY OF MARIBOR

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Higher education lecturers go through a long de-

developmental path from graduate students to academic title of professor. On this path, the most delicate period is retirement. The vast majority of senior professors could still contribute and participate in the development of society.

The aim of our research was to assess the academic and life activities of retired professors of the University of Maribor.

50 retired and emeriti professors from the University of Maribor, aged 65 to 87 years participated in the study. An anonymous questionnaire covered three different areas: demographic and professional data, health status and specific questions about the lifestyle and involvement in the scientific and academic environment during retirement.

The results showed that the vast majority of retired and professors emeriti were still active in academic life and contributed to the development and functioning of the University. More than half of them still attended scientific and professional meetings (64%), while 30% actively attended conferences. 52% stated that they still write recommendations to younger colleagues and 14% of them still gave lectures at foreign universities as invited lecturers.

We identified three main categories of activities in retirement: Dedication to family and friends, continuation of academic life and use of knowledge and experience in a different way and in a different field. Retirement causes changes in life, but this does not mean that creativity and energy dry up, they only need to be redirected and continue to have and achieve goals in life.

THE GLOBAL "FUGUE OF DEATH" AND THE MORBID TARTUFFIAN GAMES OF THE PHARMACEUTICAL MAFIA

(Socio-anthropological marginalia and the causes and consequences of the Covid-19 pandemic for the contemporary man and society)

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The Covid-19 pandemic is the harshest example of the globalization of risk in the contemporary world. The paper analyses the social-anthropological aspects of the causes and consequences of the Covid-19 pandemic in the context of globalization of risks and the tragic impact to the current "fugue of death" in the world.

Analyzing the destructive dissolution processes of our civilization based on technocracy, trade and instrumental rationality, on the one hand, and the logic of the insatiable greed of the mega capital, on the other hand, the paper points out that the forces of contemporary corpocracy and plutocracy have brought humanity into conflict with the natural environment on the planet and with the Anthropological possibilities of securing the environment and people's quality of health.

The analysis focuses on the causes and consequences of the Covid-19 pandemic, and its effects on numerous activities and the behavior of different models of health systems in the world. It especially points out to the dishonorable and morbid effects of the pharmaceutical mafia, the manufacturers and traders of drugs, who have instrumentalized medicine in the service of super medicalization, i.e. of structural iatrogenic diseases, and who are devoted to the treatment of consequences, rather than the prevention and preservation of health and quality of human life. The paper pleads for the construction of a new relationship between society and disease, and for a new philosophy of sustainable socio-ecological development and health. Namely, instead of fetishizing the curative effectiveness of medicine and of pharmaceutical invasion, it is necessary to strengthen preventive activities in the field of human health protection.

Naturally, that ought to be preceded by a radical systematic change of the development model, away from the neoliberal doctrine towards a social democratic model, which would restore the "soul" of the global solidarity of mankind, which, unfortunately, in the current Covid-19 apocalypse is either absent or late, which only illustrates deep global inequalities between the "North" and the "South" in the contemporary world.

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VOCATIONAL LEARNING; THE ART OF REFLECTIVE CURIOSITY

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Today, the existing social division of knowledge has entered new conditions. The development of technology during the past decades has created revolutionary challenges to work of the hand and the mind along with new challenges to scientific work and the art of teaching. The expansion of education in formal institutions after World War II has reinforced fundamental questions about learning and teaching. New voices and critiques have challenged the lack of complexity and ways of seeing in the traditional western academic world. The pandemic also defies the contours of the social division of knowledge in our global world. Digital praxis and new epistemological questions are developing worldwide. More than ever, we find out “how much wears in the world together”.

Thus, it is necessary to develop a more complex method of thinking and a more complex paradigm of knowing.

Recent discourse in educational theory on the interface between individualized academic learning versus learning through “hands-on” activity and social cooperation holds promise for change in the education of the future. Mentoring, a concept rooted in the Socratic method, has come to the fore front in discussions about learning and teaching. The Master’s work is to promote a pedagogy of questioning to develop learners’ curiosity in cooperation with co-learners. This understanding of learning follows an apprenticeship model where praxis and stored knowledge are the basis for

learning. My work draws on Thomas Kuhn’s and Edgar Morin’s call for a change of paradigms in both natural and social sciences, as well as Dorothy Smith’s “standpoint of knowing” in her work on the social organization of knowledge and Lev Vygotsky’s understanding of learning as relational through activity and social interaction. Key words: The Social Division of Knowledge, Praxis and Stored Knowledge, Master-Mentor-Apprenticeship, Vocational Pedagogy, Pedagogy of Professions.

STROKE MEDICINE FROM ANTIQUITY TO TODAY

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First description of stroke was reported in Psalms of Bible. During ancient Mesopotamia disorders of the brain were reported by exorcists and physician-priests.

Hippocrates identified the acute cerebrovascular accident as apoplexia, “sudden but mostly general rather than focal disorder of brain”. Apoplexia was considered due to an imbalance of the four humors.

Galen of Pergamon (131-201 b.C) identified the “rete mirabilis” at the base of the brain in animals: animals spirit were stored within the cerebral ventricles and the apoplexia was caused by failure of animals spirit due to accumulation within the ventricles.

In the middle age Galen’s doctrine remained the core of medical stroke knowledge.

In 16th century J. Fernel (1497-1558) demonstrated that apoplexia was the result of a blood clot obstructing blood flow in the arterial at the base of brain. The description of blood circulation by W. Harvey (1578-1657) and of anastomosis and cerebral circle by T. Willis (1621- 1675) changed the clinical scenario of stroke.

GB Morgagni (1682-1771) divided apoplexia as “sanguinous and serous”; R Virchow (1821-1902) introduced the term of “thrombosis and embolus”.

Subsequently, the vascular anatomy, the clinical symptoms and the possible mechanisms of stroke were studied.

The 20th century was pivotal moment for the stroke, for the introduction of Computer Tomography scan and Nuclear Magnetic Resonance, that changed the history of stroke. In the last years, carotid surgery, clinical trials, introduction of thrombolytic treatment with i.v.r-TPA and thrombectomy in ischemic stroke as the organization of stroke units and prevention protocols for vascular risk factors resulted efficacious therapy for the reduction of disability and mortality.

AEROSOL RESEARCH FOR ATMOSPHERIC QUALITY AND HUMAN HEALTH

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Measurements of airborne particulate matter are of paramount importance for the protection of human health, the design of the appropriate measures and legislation as well as the investigation of climate change. Usually, the research focuses on PM₁₀ and 5 particulates (aerodynamic diameter less than 10 µm and 2.5 µm respectively). The level of uncertainty however, is too high and the trace ability is insufficient. Solutions for such issues are properly addressed and proposed within the framework of two European EMPIR (European Metrology Programs for Innovation and Research) projects, AEROMET I and the ongoing AEROMET II, funded by EURAMET. NTUA participated in these programs as academic partner, among 21 participants from 15 E.U. countries, mainly National Metrological Institutes.

The main objectives of the projects are: Design and building of a demonstration aerosol mixing chamber delivering reference aerosol used for the calibration of automated instruments for PM₁₀ and PM_{2.5} particulates; The application of traceable validated methods for determination of various species of carbon and the toxic elements, such as arsenic, cadmium, lead, nickel and mercury on the particulates; The use of a new mobile X-ray spectrometer for the real time and on site quantification of the composition of particulates and the comparison with conventional lab-based techniques; Construction of suitable substrates with different fabrication techniques for the sampling of the particulates with appropriate cascade impactors, is under development.

Finally, our aerosol research in the atmosphere of the Attica basin, in combustion of wood pellets and in exhaust of automobile catalyts will be presented.

THE "FONIFERO" OF GIOVANNI PALADINO (1876) FIRST HEARING AID

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In the second half of the 19th century the most spread toy among children playing in the streets of Naples consisted of a little tin drum closed on 1 site with a skin from which departed a long thread. Its extremity was held by the teeth of the person who wanted to hear what was said even at a down voice, at the other extremity of the drum.

The transmission of the voice occurred along the thread only in the case the thread was tenses between the origin of the sound and the place where it had to be heard. This observation stimulated the creativity of Giovanni Paladino (1842-1917), Professor of Physiology at the University of Naples who in 1876 designed a very simple tool named "fonifero" (conveyor of sounds) and published the prototype in *Il Movimento medico-chirurgico*. The equipment allowed the transmission of voice directly to labyrinth through cranial bones. The study was entitled "On the physiological transmission of voice through cranial bones and its value in otolaryngology".

The equipment consisted of a stick bearing at its extremity a curved thin tin shaped as a half circle and on the other extremity it ended with a slightly concave small disc. The small semicircular plaque was applied on the larynx of the explorer, whereas the other terminus was kept between patient's teeth. At a variance it could be applied either on the forehead, or the occipital bone or on the mastoid apophysis. When the internal hearing was intact the patients could hear clearly even speaking softly, whereas no sound could be heard via transmission through air.

NATURE CONSERVATION IN EUROPE

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European Vegetation is well known following studies that started in 1800. In 2006 a great map

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of European vegetation (1:250.000) has been published under the care of European Botanists from all European Countries coordinated by Professor Udo Bohn (Bad Godesberg).

European vegetation belongs to various ecological categories. Mediterranean vegetation consisting of ever green plant, Middle European vegetation consisting of broad leaved species, North European vegetation made of conifer (Taiga) followed by tundra. One should also recall vegetation of them mountain chain: Pyrenees, Alps, Apennines, Carpathians, Urals, etc. Over the centuries there has been a strong anthropic impact on European vegetation that has led to the disappearance of forests in the plains and to their reduction on mountains. Some flaps of "residual" vegetation have been preserved through the institution of protected areas (parks and nature reserves) like those of Bialowieza, Lüneburgerheiden, Camargue, etc. The European Community approved The Habitat Directive that includes various types of natural vegetation. The question now is what is the state of conservation in Europe? In Europe there are a few places where vegetation at the stage of fluctuation (that is with high degree of neutrality), but the major part off ores share in the stage of degeneration and regeneration.

THE BIRDS AS ARTISTIC EXPRESSION OF THE ANCIENT POMPE II

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The complete burial of ancient Pompeii following the eruption of Vesuvius in 79 AD, still today allows to admire the unique and outstanding work of art that have enabled us to reconstruct, among other things, those what were the cultural interest of local population, their relationship with some animal species, as well as, his way of relating to art.

This work, therefore, is a rapid excursion in ancient Pompeii and in other cities near the volcano's foothills, whose path is articulated within the framework of decorative painting and mosaic

art, with particular reference to the most beautiful works depicting birds and what is reminiscent of the nature-oriented representations that include some species of this class of animals that have always played a major role in art for their unique qualities and great morphological differences. Since the work is focused in birds, their multiple virtues are, first of all, mentioned, from their mastery of the heavens through flight, at the beautiful exterior appearance sometimes exalted by dazzling colors and the sweetness of the song of some species. There counting of the previously described qualities engender smutch respect and appreciation for these wonderful flying animals.

Hence, we were inspired to describe the major aspect of frescos present in the most important Pompeian dwellings, namely the scenes of garden paintings in which many birds express all their lively vitality and beauty.

CHRONIC KIDNEY DISEASE: A HUMAN MODEL OF ACCELERATED AGING

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Chronic Kidney Disease (CKD) is a health care problem, easily compared to diabetes, for scope, impact, and consequences on well-being. CKD is a syndrome delineated as alterations in kidney function and/or structure lasting more than 3 months, characterized by loss of nephrons and renal fibrosis.

CKD is considered a "model" of accelerated aging under many respects, an aspect which is linked to the accumulation of uremic toxins, compounds such as p-cresyl sulfate, indoxyl sulfate, homocysteine, lanthionine, etc. In CKD, we have a premature aging phenotype, characterized by low grade chronic inflammation, sarcopenia, osteoporosis, frailty, and high cardiovascular mortality. In particular, early vascular aging is quite characteristic, sustained by vascular calcification, micro inflammation, DNA damage, epigenetic alterations, gut symbiosis, and is a hallmark of senescence.

We have shown that DNA methylation, an important epigenetic regulatory mechanism, is lower in CKD, and this is a consequence of the accumulation of homocysteine, a cardiovascular risk factor, and of its precursor S-adenosyl homocysteine, a known methylation inhibitor. DNA hypomethylation is typical of the aging process. Another aspect of this complex and deranged sulfur metabolism is related to the levels of hydrogen sulfide, H₂S, a gas transmitter with many biological properties, in CKD. H₂S is a powerful modulator of health span, severity of disease, and longevity, and we have demonstrated that H₂S is significantly lower in CKD. Telomere attrition, mitochondrial dysfunction, stem cell exhaustion, and other markers of aging are also present in CKD. How to intervene on these processes with hemolytic agents represents the emerging field of Geosciences.

ROBERT SCHRIER-A WORLD LEADER IN NEPHROLOGY

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Bob Schrier graduated in Medicine in 1958. He had, fortunately, chosen Medicine over sport. Headmits that he played baseball on his wedding day arriving in time to recite his vows—but it was a close call!

In 1965 he worked at Peter Bent Brigham Hospital where his lifelong interest—salt and water balance—started. In 1972 he became Head of Renal Diseases at the University of Colorado and Chairman Of Medicine in 1976. He devoted much time to training and mentoring Fellows and juniors; > 200 Fellows passed through his department. Research extended to other body systems and diseases that featured fluid retention .g. Cirrhosis, which led to then now-accepted treatment.

Faculty membership increased from 75 to about 500, research funding from \$3m to \$100. He published >1000 papers and >50 books. He received awards from around the world. He was, at varying times, President, Association of American Professors, American Society of Nephrol-

ogy and International Society of Nephrology (ISN). He expanded their fluency of ISN globally, establishing the Fellowship and the Sister Renal Centers programs, both aimed at developing nephrology in under-developed countries.

“Post-retirement” he researched Polycystic Renal Disease and other fields, many related to salt/water balance. Between 2002-2018 he wrote 177 papers and several books. He continued mentoring and in 2012 received damage or award in Academic Mentorship.

He became Professor Emeritus, Colorado University in 2012.

NATURE PROTECTION

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Sapiens are also part of nature. Over the centuries, they have helped to modify it, generating 'second nature for civil uses'. A wise and continuous transformation which, however, has faded and been interrupted by the demographic explosion, the prevalence of sectorial logic and the uncontrolled multiplication of human actions.

Homo Insipiens seem to be gaining the upper hand. The Sapiens will not succumb if - with the strength of a systemic vision - they succeed in regaining control of their actions, mitigating selfishness and giving priority to the 'Environment' (a planetary issue), then to the 'Landscape' (which characterizes each community, if it is in the European sense of the term), then to 'Memory' (that identifies a place and remains in the imagination). Sapiens cannot protect nature, which is an immense network of relationships and a symbiotic whole in continuous transformation. In their journey 'from animals to gods', the sapiens cannot delude themselves into thinking they can dominate Nature. Avoiding distinctions and conflicts (thus with continuous and simultaneous γνώθι σαυτόν) they can deepen their knowledge of it, understand it and continually surprise themselves with how naive their previous beliefs were. There is always the 'era of unjustified ignorance', in which the Sapiens do not organize what they

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know - and what they envisage from a trans-generational point of view - in accordance with the time they live in. They have no power or size to protect nature: they can avoid the self-destruction off lighting.

CURIOSITY DRIVEN SCIENCE: THE CAPITAL OF USELESS KNOWLEDGE

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If I were asked to mention an important lesson I learnt during my long scientific career and which I wish to transmit to young investigators this would be: "Don't care of the practical usefulness of your research and feel inspired only by curiosity". I was feeling embarrassed to manifest such a "selfish" opinion until I came across a 2019 press conference in *The Economist* of Fabiola Gianotti, director-general of CERN, whose title, *The usefulness of useless knowledge*, was drawn from an article published in 1939 (the year of my birth) by Abraham Flexner, one of the founders of the Princeton's Institute for Advanced Studies. Gianotti in her interview is inspired by a number of fundamental breakthroughs, which were considered abstract and without any practical utility when they were generated, while decades later they are finding spectacular applications for the mankind.

At a much more modest level I have also met situations like those mentioned by Fabiola Gianotti, where the unanticipated outcomes of curiosity driven research were disregarded for decades, due to the skepticism of the majority of the scientific community; and who's conceptual and practical Relevance was only recognized after a long period of oblivion. A couple of these "cold-cases" will be Recollected in my presentation.

A paradoxical corollary of this scenario is that while curiosity driven basic research can only flourish in democratic and liberal Countries its modus operandi is grounded on rigid scientific criteria that cannot undergo the rules of democracy.

PHYSICAL INACTIVITY VS PHYSICAL ACTIVITY—WILL WE SURVIVE

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Physical activity (PA) is more important than ever for our health. It is a lever for physical fitness, workefficiency, immune system resilience, and maintaining psychophysical balance. PA is, of course, central to evolution, but evolution is being undermined by a new relationship with gravity, from opposing to acceding.

For decades, research has pointed to the positive health effects of PA. Despite the immense efforts that many professional and scientific organizations have made to raise the awareness of individuals and society about the role of an appropriate amount and intensity of PA in daily life and to increasethe level of adherence, the situation is still very worrying. Even more worrying is the fact that increasingly prolonged periods of physical inactivity (PI) are insidiously and aggressively taking over the lives of modern people - at school, at work, at leisure, at home. Probably incomprehensible and difficult for many to accept, but PI is becoming the first and worst enemy of health in today's society. The purpose of this article is to outline the consequences of PI studied using more aggressive models (BR case) or restriction periods (COVID -19), as well as to explain the effects of PA and its dimensions to counter act these negative effects.

THE EUROPEAN UNION AND ITS CULTURAL HERITAGE

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In 1950 in Paris, Robert Schuman and Jean Monnet declared their vision of the political union of the European countries for the purpose of eliminating all occasions of war in Europe, which had then been deeply wounded by the conflicts of different interests and ideologies. The two politi-

cians wished to bring countries together with the aim of creating a “Europe without borders”, a Europe of moral values, culture and civilization. Unfortunately, today Europe appears to be an exclusively monetary union and not the political and cultural one that its founding fathers had envisioned. The Greco-Roman roots of Europe, which constitute its greatest advantage, its most valuable heritage and the most powerful element of unity, seem to suffocate in the context of globalization. The European Union, which is now experiencing a financial war as well, seems to be in different to citizens’ lives.

We undoubtedly need a policy that will build once again a plan, a vision for the future. Mentors from all over Europe are ringing the alarm bells about its course, giving advice and suggesting solutions to the problems that keep arising on a daily basis. It would be a blessing if the European Union leaders listened to their messages, which are pointed out in this presentation, so that the vision of the inspirers of a united Europe is revived again, along with the hope of the youth of today for a human-centered Europe.

PATHOCENOSIS (FROM CONTAGIOUS DISEASES OF ANTIQUITY, TOPLAGUES, EPIDEMICS, PANDEMICS AND EPIZOOTIC DISEASES)

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The aim of the volume is to perform a historical journey from plagues examining the various calamitous health events that have affected humans and animals over the centuries. In representing the different causes, it was observed how the diffusion has almost always pursued the same path of contagiousness, as well as the intervention strategies.

The man, as represent ant of the lasts stage of the species evolution, has periodically found himself facing and fighting large-scale health catastrophes such as epidemics, which have irrepressibly determined massacres of animals and humans.

An endless story that since the dawn of civilization concerns the origins and changes of communicable diseases, as documented by recent paleontological and molecular research. Public health events, commonly called plagues, as an expression of an altered balance between organic defenses and the potential of some microbial agents, without neglecting those unconventional agents, have altered the ecosystem.

These plagues have found space from the anthropocentric vision of humans, which is not considered the respect of health and ecosystem. Hominids brought with them various family pathogens such as parasites, fleas, bacteria, and, consequently diseases to them related, between some zoonosis.

The Author analyzes main plagues, occurring over the centuries in relation to the concept of the pathogenesis, to better understand as the relationships between the community and infectious agents present at a given time in a given territory are influenced the dynamics of the outbreak of plagues.

PLANT PHOTOSYNTHESIS AND CLIMATE

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The effects of climate changes in consequence of rapid increase of greenhouse gases (CO₂, CH₄, and others), unprecedented in the last millions of years, have been known for decades and are generally attributed to human activities (mainly use of fossil fuels, building practices and deforestation).

Recently, opinion movements have arisen worldwide and international institutions and governments are undertaking measures directed to try and control the change to some extent. In the meantime, alternative approaches to the problem have emerged. Since plant photosynthesis on vast parts of the Earth (and in oceans) captures large amounts of carbon dioxide and releases oxygen as waste product, it is thought that increased extensions of forests could per-

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haps compensate for additional CO₂ release and O₂ consumption by anthropic activities. Excellent instrumentation for measuring plant gas exchange at a laboratory and community level is available and long distance assessment techniques have been developed, so the effects of plant growth and expanding vegetation on atmospheric gases could be carefully monitored. Current proposals about worldwide tree planting and expected effects on greenhouse gas status have broad implications and deserve a public discussion, whose general terms can at least be presented in this short talk.

LIGHT FOR DIABETIC PATIENTS THANKS TO EVA MARIA KOHNER (1929 - 2021), A JEWISH BARONESS FROM BUDAPEST

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Eva Maria Kohner was born in Budapest (29th February 1929) as a 6th generation member of a rich Jewish enterpruner dynasty. In 1913 the family received the baron title and their acquaintance with Horthy family provided them protection against the anti-Jewish laws, but after the accession of Arrow-Cross movement to power it ceased to function. Eva (converted to Calvinistic faith) attended the Baár-Madas School in Budapest, and with their help survived the Holocaust. The situation during the communist regime was not better and Eva fled to Vienna and later to London where he enrolled in nursing and medical studies at the Royal Free Hospital. After graduation Eva moved to the Hammersmith Hospital and joined the team of Professor Dollery, who was beginning to study retinal circulation with fluorescein angiography. Her first paper was published in 1964, followed with 400 others. Eva's contribution to the understanding of pathophysiology of diabetic retinopathy was outstanding, she also pioneered photocoagulation as an effective treatment. At the Airlie House Symposium in 1968 she participated in development of retinopathy grading system. Later she

coordinated the British Multi-center Trial of Photocoagulation. In 1990 professor Kohner co-founded the Eye Complications Study Group of the EASD and was its first president. With Massimo Porta Published "Screening for Diabetic Retinopathy in Europe" (1992), the foundation of retinopathy screening programs. In 1995 she received the Order of the British Empire from Her Majesty, the Queen. Professor Eva Maria Kohner, Honorary Member of the EASD, passed away on 24th September 2021.

TRENDS IN RENAL REPLACEMENT THERAPY IN BOSNIA AND HERZEGOVINA IN THE LAST DECADE

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The Renal Registry (RR) of Bosnia and Herzegovina was established 2002, with aim to follow up the trends of Renal Replacement Therapy in Bosnia and Herzegovina. The prevalence of RRT in Bosnia and Herzegovina is rising steadily. The aim is to present the epidemiology and treatment of all aspects of RRT in B&H in period 2010-2020. The demographic data, prevalence, incidence, type of RRT, cause of ESRD, were obtained from the questionnaires from 29 dialysis centers. The number of patients treated by RRT increased steadily from 2488 patients in 2010 to the 2693 in 2019. COVID-19 was started in 2020 and number of patients decreases to 2543 patients. The prevalence has increased from 709,2 pmp in 2010 to 720,2 in 2020 Incidence (new patients) in 2010 was 130,6 pmp and incidence rate in 2020 was 115,0 and there were 406 new patients (day 1). The mean age for new patients increased from 60 years in 2010 to 63, 5 years in 2020 and population over 75 years rate from 9,79% to 13,5%. Most ESRD patients in Bosnia and Herzegovina are undergoing intermittent hemodialysis (92%) while some patients treated (8%) by P Dand transplantation. The most significant cause of ESRD in 2010 was chronic glomerulonephritis (543 patients) followed by pyelonephritis (490 patients). and diabetes mellitus 393. The number of DM patients increases and in 2019 was 546 in

2020 479 patients. COVID -19 affect ESRD patients and they had worse outcome. Transplantation rates decreases and only 4 transplantation done in 2020 and 2021. In Bosnia and Herzegovina we follow up 266 patients with functional graft and 54 patients (20,3%) affected with COVID-19 and 11 patients died (20,37%). From 8 dialysis center in 2020 we have got data for COVID-19. From 622 patients, COVID-19 affected 361 patients (58,04%) and 75 died (19,38%).

In 2020 547 patients on RRT died and it has been high mortality rate (17,7%). The need for RRT in Bosnia and Herzegovina is increasing in last decade but COVID-19 has effect on mortality on RRT.

The preventive measures are necessary to prevent ESRD and also to decrease the number of patients on daily isis.

FROM THE INVERSION OF THE PARADIGM BETWEEN "AGING AND DISEASE" TO THE "BIOMEDICAL PERSON" CONCEPT

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The inversion of the "paradigm" between aging and disease, which I put forward and discussed in recent years (1), the misnomers of the term "age-associated diseases", and other considerations related to ideological aspects of the so-called oxymoron term, physiological aging, are discussed to illustrate the need for an expected revolution in medical care. These cond big change is the witch from the precision medicine, which is to cure each single disease, to the real individualized medicine, which is to take care of the whole person" with his/her complex multimorbidity.

A third "paradigm" is then to monitor subjects when they are still healthy starting in their young stage, after auxological and sexual maturity (18-22 years old) has been reached. Thus, the change of this paradigm is not to take care or to monitor each individual when they are already

sick, even with only early signs or symptoms had appeared, that is as a patient, but since very earlier, when they are still healthy. This brings me to the novel concept of "biomedical person" which means to consider any individual complexity formed by any single biological and psychological aspects, all along their life. The first two important consequences of these new concepts should deserve: 1) Medical Schools should include these concepts in the training of students and during internships, and 2) any National and local Sanitary System should take them into consideration, since this will produce an enormous witch from curative to preventive aspects of Medical care increasing life-span wellbeing.

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THE HUMAN CAPITAL OF AGE

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In the last century mean life-span increased significantly, mainly due to (I) progress in basic science, medicine, surgery and above all pharmacology and (II) generalized improvement in living conditions due to welfare, housing standards and mobility. Social politics also improved by protecting pensions in aging without really protecting the capability of the ageing persons to be productive. A kind of discrimination towards knowledge of aged persons that should be considered a resource rather than a weight for general economy. There is a need for a National and European Authority aiming to promote full utilization of memories, knowledge and wisdom of the older persons. Memory as primary value of social and cultural identity of the community where we live: for Marc Bloch (1886-1944) it is impossible to understand the present without knowing the past. Competence is the patrimony of new knowledge acquired over the years (professions, arts, crafts).

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At the time of the covid-19 pandemic all those who have experience and willing to collaborate should be invited to contribute to abolish the discrimination and the injustice that affects the young generation. Thus professors, entrepreneurs, freelance in profession, experts in technology and agriculture, should work together with those who care for young generation in order to build a strong a new transgenerational pact aiming to full use of the energy of the young generations as well as of experience of aged persons. Thus we have to make full use of the fundamental elements turning senior persons into “a social treasure”.

EPIDEMIC AND PANDEMIC: PAST, PRESENT AND FUTURE

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The study of pandemics, epidemics and their history is not only part of the memory of humanity but also represents an indispensable knowledge for health and for the safety of peoples. Epidemics and pandemics appeared in the world since the late bronze age and they have been around the world for millennia as the flu that is well known since the Neolithic period. Ippocrate (460-377 a.C.) made the first description of some flu symptoms that were present after among greek and romans. The plague epidemic during Justinian's Byzantine Empire caused 100 million of deaths. During the black plague epidemic (14th century) the European population decreased from 80 to 30 million people. Smallpox virus (18th century) decimated world population until first vaccine was discovered. Numerous pandemics appeared in the 20th century such as the Spanish flu, Asian flu, Hong Kong flu, Swine flu, SARS, HIV, Ebola. These pandemics have caused the deaths of over 100 million people worldwide. Today the Covid-19 spillover pandemic virus, probably leaped from bat to man, is causing more than 5 million deaths worldwide. Wild animals carry 750,000 viruses that could be spillover for the man. The current Covid-19 pan-

demic will not be the last and it will be difficult to get rid of it .To avoid future pandemics they are necessary: 1) prevention policies should be improved globally, 2) increased scientific and pharmacological research, 3) WHO more independent, 4) international agreement for the prevention of pandemics, 5) establishment of a global council for health threats, 6) an international platform for the production of vaccines, 7) diagnostic and therapeutic tools, 8) quick access to financial resources, 9) digital health, 10) Multilateralism and Cooperation including People, Planet, Prosperity.

NEUROPLASTICITY AND MAIEUTICS OF EMOTIONS: A WORK OF INTEGRATION

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Neuroplasticity is a very active research area in numerous fields; in the case of psychiatric pathologies, the ability of the central nervous system of remodeling itself provides the explanation for the resolution of symptoms. This happens thanks to the use of therapeutic factors, including awareness in the first place. Psychiatric pathologies are based on emotional experiences such as suffering, anger, guilt, and deep pain that can be treated and resolved by emotional maieutics, a therapeutic art that provides the ability to get in touch with unconscious emotions and to regain possession of a previously unknown experience and which is itself cause of mental illness. The treatment of psychiatric diseases cannot ignore the knowledge of the psychic structure and the close dynamic connections between psychic contents and bodily experience. In the work of restructuring the psychic defenses, meeting the unconscious and its emotions determines the activation of the neurovegetative pathways (as anger, pain, guilt) recognized and well described by the Canadian school. The emotions are incorporated and the physical structure constitutes the organismic container where the emotions are placed. Awareness, psychic experience and physical experi-

enceconstitute an inseparable triad in the therapeutic encounter and emotional maieutics is meant to bring out the unconscious contents and make them evident as a contemporary psychic and bodily experience.

BRAIN FLEXIBILITY AND NEURODEGENERATIVE DISEASES

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The localization approach has been successful in understanding the pathophysiology of a number of neurological symptoms. However, finding the structural substrate of higher cognitive functions has proven elusive given that, for such functions to emerge, the coordination of multiple brain areas might be necessary. The network theory provides a framework to represent such complex interactions. Studies based on functional imaging (M/EEG, PET, fMRI) have consistently reproduced average patterns of co-activations of the brain regions over time. Importantly, these analyses have been based on the assumption of stationarity of the brain signals.

The healthy brain can respond efficiently to a vast variety of quickly changing demands. To achieve this capability, multiple cognitive functions must be readily available at all time. As a logical consequence, the patterns of activated regions are not stationary, but rather dynamically reconfiguring over time.

One can conceptualize the interactions of brain regions over time as the propagation of aperturbation generated in one region to more regions. In particular, systems operating in a critical regime (near a phase - transition) shows spatiotemporal patterns of activations referred to as "neuronal avalanches". All the combinations of active regions in time is referred to as the "functional repertoire". A large functional repertoire is an expression of flexible brain dynamics. Multiple lines of evidence showed that the functional repertoire is larger in healthy subjects as com-

pared to patients affected by brain diseases, such as Parkinson, Alzheimer or Amyotrophic Lateral Sclerosis. Interestingly, the restriction of the functional repertoire is proportional to the intensity of the clinical symptoms.

RELATIONAL FIELD AND COMPLEX NETWORKS: THE CONTRIBUTION OF COMPUTATIONAL SCIENCES TO PSYCHOTHERAPY

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The approach to psychopathology inherent in the current classification systems for psychic disorders (DSM5 and ICD-11) is epistemologically unsatisfactory for psychotherapy and does not provide therapists with useful elements for the development of treatment plans.

This happens because nomothetic and categorical nosographies are focused on intrapersonal pathogenetic models and totally lack the relational and interpersonal dimension.

A possible solution may derive from the modern developments of one of the cornerstones of the study of human behavior: the "Gestalt theory of the relational field", proposed by K. Lewin in 1935. This theory breaks away from factorial statistical models and states that behavior must be deduced from a set of coexisting facts that have the character of a "dynamic field", where the state of each part of the field depends on all the other. The dynamic approaches to the study of behavior, derived from Lewin's theory, although more suitable for supporting psychotherapeutic interventions, present an intrinsic difficulty in producing replicable and generalizable explanatory or descriptive mathematical models. The theory of complex networks seems to be able to solve this problem.

With the advent of computational systems, equipped with enormous computing power, the theory of networks has acquired great importance for the study of psycho-biological systems that can be interpreted as networks of interacting "modules" at various levels: from the interaction between people at synaptic connections.

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In this contribution we will show how the mathematical analysis of the structure of the networks produced by psychobiological systems can allow understanding of the developmental dynamics of psychopathology, in ways appropriate to the needs of psychotherapy.

THE DAWN OF CARDIOVASCULAR MEDICINE AT THE UNIVERSITY OF PADUA (1222-2022), LAND OF THE DOGES

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It has been a challenge in the history of Medicine to establish how the human body is done, functions, gets sick and dies. During the Renaissance, the anatomists perceived that the heart plays a key role for a living: “primum movens, ultimum moriens”. A definitive answer to these questions was given at the University of Padua, where the Serenissima Republic of Venice guaranteed freedom of searching and teaching (“libertas docendi et investigandi”).

DAWN OF ANATOMY

1543 was a turning point of history of science, with the publication of “De humani corporis fabrica” by Vesalius (1514-1564).

He introduced a new method of autopsy and teaching, undertaking himself the dissection surrounded by a crowd of students.

DAWN OF PHYSIOLOGY

Matteo Realdo Colombo (1516-1559) clarified the function of the pulmonary artery (“vena arteriosa”) and pulmonary vein (“arteria venalis”) by vivisection of dogs.

William Harvey (1578–1657), graduated in Padua, did vivisection of fallow deers in the Windsor Castle. He calculated the amount of blood ejected from the left ventricle into the aorta, which only a circulatory system could afford.

A PORTRAIT OF THE ARTIST AS AN OLD MAN: PATHS AND SECRETS OF CREATIVE LONGEVITY IN MUSICAL ART

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The aim of this work is to reverse the perspective of the title of Joyce’s ‘Bildungsroman’ - A Portrait of the Artist as a Young Man - by discussing great figures in the history of Western music, characterized by a fruitful longevity of life and creativity, in search of individual peculiarities but also of any common factors -cultural, historical, intellectual and psychological- which are the basis of their long lifespan. An existential and creative resilience considered not as a simple resistance - perhaps in a skilful manneristic imitation of one’s youthful inspiration but as a real capacity for continuous development, change, renewal.

Literature on the subject is scanty, perhaps because research in this field has been trapped in the gravitational field of the romantic myth of the precocious and/or prematurely deceased genius (such as Pergolesi, Mozart, Schubert). The work will discuss the following items: (i). 'Grand old men' and 'late bloomers' of Western music: some cases and profiles; (ii). Catalyst factors - personal, historical and social - of creative longevity (psychology, affectivity, history, culture, politics); (iii). Some hypotheses on the relationship between musical creativity and longevity in music; (iv). Comparisons between cases of artistic longevity in music, fine arts and literature; (v). Provisional clues for an organic study of creative longevity in music; and (vi). A review of long-lived musicians. These include: C. Monteverdi, H. Schütz, G. Ph. Telemann, F. J. Haydn, G. Verdi, C. Saint Saëns, L. Janáček, R. Strauss, I. Stravinskij, G. Petrassi, E. Carter, P. Boulez, H. W. Henze, etc.

NEURO-NEPHROLOGY IN ADVANCED AGE: WILL THE KIDNEY FUNCTION LEAD TO THE ETERNAL YOUTH OF THE MIND?

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Chronic kidney disease is an umbrella term used since 2002 to define all kidney pathologies with reduced kidney function (indexed by the glomerular filtration rate) and/or proteins in the urine. The definition does not consider the physiological reduction of kidney function during aging, and therefore a large percentage of people above 80s appear to have some asymptomatic kidney impairment. Physicians often ignore that some memory loss and other subtle cognitive abnormalities (mild cognitive impairment) accompany all forms of reduced kidney function. However, this goes unnoticed primarily because most of the medical community's attention is devoted to the survival of the subject and of the kidney itself.

The reason for the brain-kidney association is unclear. Significant possibilities are: (i) the blood vessels, which carry the blood to the brain, are possibly not working when kidneys are not eliminating waste material; (ii) the inflammatory state that accompanies kidney diseases impairs the brain activities; (iii) toxins not eliminated by the kidneys may reach the brain and influence upon its processes; (iv) finally, the kidneys may produce some unknown substance which is protective for the brain. Whatever the mechanism, our analysis in a large cohort of patients shows that kidney-induced cognitive impairment occurs mainly in advanced ages.

Notably, today we have drugs able to slow down the loss of kidney function, so-called nephro-protective substances. Therefore, these substances might also indirectly represent drugs to stop the brain aging, leading to a prolonged youth of the mind.

ABOUT PARKINSON'S DISEASE

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2017 marked 200 years since James Parkinson's published his 'Essay on the Shaking Palsy'. J. Parkinson not only comprehensively described the symptoms of the disease, but challenged his peers to better understand the pathophysiology of this condition. Diagnosis of Parkinson disease (PD) is still based on history and examination. History can include prodromal features (eg, rapid eye movement sleep behavior disorder, hypsomia, constipation), characteristic movement difficulty (eg, tremor, stiffness, slowness), and psychological or cognitive problems (eg, cognitive decline, depression, anxiety). Examination typically demonstrates bradykinesia with tremor, rigidity, or both. Key observation over the next 2 centuries, included the recognition of the link between the substantia nigra and Parkinson's disease (PD) and the discoveries of dopamine deficiency in patients with PD.

Parkinson's disease has multiple disease variants with different prognoses.

Individuals with a severe sub type have prominent early motor and non motor symptoms, poor response to medication, and faster disease progression. Individuals with mild motor-predominant PD have mild symptoms, a good response to dopaminergic medications and slower disease progression. Other individuals have an intermediate subtype. For all patients with PD, treatment is symptomatic. The development of pharmacological and surgical therapies have changed the natural history of the disease. Despite great progress over the last 200 years, Parkinson's hopes for a 'cure if employed early enough' or that 'some remedial process may ere long be discovered by which at least the progression of the disease may be stopped' remain apposite today and we must reflect on the challenges ahead for the next century.

ANCIENT CHEMICAL TECHNOLOGY: THE INVENTION OF MINERAL ACIDS AND AQUAREGIA IS AN ARABIC OR HELLENISTIC ACHIEVEMENT?-AN INTERDISCIPLINARY APPROACH

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The invention of acids is credited to Arab Alchemists. In ancient Graeco-Roman literature different names accompanying the word water (ὕδωρ or aqua) means acids. In Description of Greece (Ἑλλάδος περιήγησις) of Pausanias (c.AD 110-c.1180) a passage is referred to the myth of Styx water which is strong corroding metals including Gold. We considered that is not a text of paradoxography but hides the existence of acids. It is an argument that during the Hellenistic era acids were known. Aquaregia a mixture of nitric / hydrochloric acid actually dissolves Gold. Our hypothesis is strengthened by a recipe from On the invention of truth (De invention e veritatis) attributed to Geber (721-815 AC) describing the production of nitric acid (aqua fortis/forte) by distillation of specified quantities of the following materials: cyprian vitriol (copper sulfate), salpetre (potassium nitrate) and alum (στυπτηρία sulfate aluminum and potassium). Then is written that by adding a small quantity of an ammoniacal salt (salammoniacum, ammonium chloride) a mixture is produced that dissolves Gold. We observe that indirectly refers to the production of Aqua regia. In Arabic countries ammonium chloride was named Nushantir. It is noteworthy that Dioscorides (c.AD 40-c.90) influenced by Theophrastus (372-287 BC) was highly acknowledged by the Arabs and his De Materia Medica (περί ὕλης ἰατρικῆς) contains important topics of chemical technology. It was translated from byzantine manuscripts to Arabic (9th century). This consideration is an answer to the question how Hellenistic chemical technology was transmitted to the Arabs.

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ΕΛΛΗΝΙΚΗ ΚΑΡΔΙΟΛΟΓΙΚΗ ΕΠΙΘΕΩΡΗΣΗ

HELLENIC JOURNAL OF CARDIOLOGY