

Progress in Science, Progress in Society

Alain Tressaud  
Editor

# Progress in Science, Progress in Society

 Springer

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*The main objects of all science, the freedom and  
happiness of man ...*

Thomas Jefferson  
Jan. 26th 1810  
letter to General Kosciusko

# Foreword

On November 18–19, 2016, the European Academy of Sciences organized a conference devoted the theme *Progress in Science, Progress in Society*, in cooperation with the Académie royale de Belgique. The conference took place at the Palais des Académies in Brussels, Belgium. We are glad to publish the proceedings of this conference for the general public.

The European Academy of Sciences is an international non-profit organization aiming at promoting excellence in science and technology. Based on Brussels (Headquarters) and Liège (Operations Centre), Belgium, it is a community of highly selected, top-level scientists in limited number (about 500) from all over Europe, and open to a restricted number of non-European scientists with strong research links to Europe. The Academy is also honoured to have several Nobel Prize winners and Fields Medal winners amongst its ranks, which include scientists from both fundamental and applied research fields. The Academy is organized in nine specialized divisions: Mathematics; Computational and Information Sciences; Physics; Chemistry; Materials Science; Earth and Environmental Sciences; Medicine and Life Sciences; Engineering; Socio-economic Sciences and Humanities. In recent years, the Academy, acting in cooperation with universities in Europe, organized conferences on such topics as *Science and Ethics* (Porto, 2014) and *Impacts on Climate Change* (Brest, 2015). Following these multidisciplinary meetings on very timely subjects, the conference on *Progress in Science, Progress in Society*, is a significant moment in the life of the Academy.

Progress is a common feature of science and human societies generally speaking. There is no doubt that one of the driving forces of the material and intellectual progress of mankind has been science and technology. However, these are not the only forces acting on human history, so that their role is not always fully recognized and even sometimes refused. Does Progress in Science ultimately mean Progress in Society? How to ensure that scientific progress becomes both materially and intellectually beneficial to society, including people who are far away from it and socially excluded from it?

One of the reasons for the lack of recognition of the value of science for society may be that there is an increasing gap between the internal perception of science by

scientists and science as perceived by society, perhaps because the extremely rapid scientific advances and their potential applications are poorly perceived by many. Indeed, there is no direct implication leading from science to the public understanding of science, in spite of enormous, never-ending efforts made recently. Science remains in its very nature a demanding, elitist exercise, far from the ordinary concerns of most people. Science does not appear to people as an end in itself. It is only a means among other ones for the service of society at large.

Indeed, an increasing number of citizens, even in modern developed countries, in Europe and elsewhere, show a growing distrust for science or even for any kind of progress, due to an increasing sensitiveness for risks, thus hampering knowledge acquisition and consequent improvement of living conditions. In the current context of individualism, the freedom of refusing is a way of asserting the primacy of the individual with regard to objective knowledge. There is an enduring conflict between objective knowledge and subjective legitimacy, because objective knowledge stands out frequently in sharp contrast to common views. Indeed science, which means well-established facts rather than uncertain beliefs, is more needed than ever to ensure success rather than failures in human affairs, although not every part of human knowledge has become scientifically sound and mature.

In domains like life sciences and medicine, one can observe that fundamentalist anti-science attitudes are rapidly gaining weight in some parts of society. There is a need of an empirical sociological analysis of these attitudes, or of other attitudes like the refusal of medical practices in the field of public health. The value of science is often underestimated, with potential consequences at the political level. Another danger encountered by scientific progress has to do with the varying delays between fundamental research and its applications, leading to short-term policies and possibly to the neglect of long-term investment.

In this present context, it seems timely to contribute to the reflection at the European scale on issues like trust, distrust, communication, and scientific governance and organization.

I am particularly grateful to Prof. Charles Joachain, President of the Académie Royale de Belgique, and to Prof. Hervé Hasquin, Standing Secretary of the Académie, for their help in the organization of this Conference. The Académie Royale de Belgique is also present in the Conference by several of its members. I am particularly grateful to all our speakers. They will forgive me to give my sincere thanks to Prof. Catherine Bréchnignac, current Standing Secretary of the Académie des sciences, Ambassador for Science and Technology of the French Government and former President of the International Council for Science, and to Prof. Jean-François Bach, former Standing Secretary of the Académie des sciences, for their participation. I wish also to thank Mr. Philippe Keraudren, member of the DG Research and Innovation of the European Commission, who was able to participate. Mrs. Héléne de Rode, Perpetual Secretary and Founder of the European Academy of Sciences, and Mrs. Ludivine Dubois deserve a special recognition from the scientific community for their constant involvement in the development of the European Academy of Sciences. I thank also for their generous support the

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Claude Debru  
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Ecole Normale Supérieure, Paris President  
European Academy of Sciences (2014–16)

# Contents

<b>Is Progress in Science, Progress for Society?</b> . . . . .	1
Catherine Bréchnignac	
<b>Science and Social Communication</b> . . . . .	7
Natividad Carpintero-Santamaría	
<b>Understanding Phenomena by Building Models: Methodological Studies on Physical Chemistry</b> . . . . .	19
Martin Carrier, Armin Gölzhäuser and Katharina Kohse-Höinghaus	
<b>Making Education More Inclusive and More Integrated</b> . . . . .	37
Claude Debru	
<b>The Contribution of Social Sciences and the Humanities to Research Addressing Societal Challenges. Towards a Policy for Interdisciplinarity at European Level?</b> . . . . .	43
Philippe Keraudren	
<b>Science in an Age of (Non)Reason</b> . . . . .	59
John R. Porter and Bernd Wollenweber	
<b>New Perspectives in Genetic Therapies</b> . . . . .	71
Alain Fischer	
<b>Technological Innovation as a Factor of Penetration of Science in Society</b> . . . . .	79
François Guinot	
<b>Law Facing Information and Communication Technology (ICT)—Conflict or Alliance?</b> . . . . .	91
Yves Pouillet	