



ACCADEMIA NAZIONALE DEI LINCEI

11 November 2016

Inauguration ceremony of the Academic Year 2016-2017

Address of the President of the Academy

1. An address in the wake of the tradition

In opening the 414th academic year of the Accademia Nazionale dei Lincei, I have, first, the duty and honour to read a message of the President of the Italian Republic, Prof. Sergio Mattarella, to whom I am very grateful for eagerly supporting the Lincei with his regularly attending the closing ceremony of the academic year and the renewal of his patronage, as well as for his confirming the conferment of the Prize of the President of the Republic, which Luigi Einaudi had first instituted.

«The opening of the 414th academic year of the Accademia Nazionale dei Lincei gives me a great opportunity to once more express to you, illustrious President, and to all Members, my heartfelt greetings and my appreciation for the unfaltering commitment to the scientific research and the dissemination of the knowledge of our cultural heritage in our Country.

Today's ceremony is an institutional event that follows in the wake of a tradition that is renewed periodically, to reaffirm the role of an academic community that endorses and promotes high civil and social values, a place where knowledge is created and developed, aimed at the promotion of critical knowledge and the education to moral and ethical values.

The authoritativeness of the scholars and the Institute's ancient, deep roots testify to its unquestionable prestige, enhanced by numberless initiatives characterized by rigorous studies and enlivened over time by research themes that reflect the challenges of the contemporary world.

The Academy's special vocation to combine tradition and innovation in a perspective view inspired by the values of an authentic humanism and the efforts undertaken in the sharing of knowledge in a fruitful exchange between research and civil society, contribute to the creation of advanced professional skills and the development of an exemplary cultural model that constitutes a cornerstone value of civic awareness towards progress, cohesion and social evolution.

In recalling the fruitful and historical tie between the Institution and the Presidency of the Republic and in congratulating the winners of the prestigious awards that are now being conferred, I express my best wishes to everybody. Sergio Mattarella»⁽¹⁾.

I wish to thank all the Members and the award Winners, our friends and all those who regularly attend the meetings of the Lincei (among whom many Authorities), being the day of the inauguration traditionally dedicated to them.

As in the past, I trust in your benevolent reception of my brief reflections that I shall develop along lines already drawn in the opening and closing speeches of the previous year, in the wake of the history and tradition of the Lincei. It would be injudicious to claim important changes compared to our four centuries of history, under the watchful eyes of Federico Cesi and Galileo Galilei. Cultural and scientific events, political and institutional, economic and social events, remind us – I have remarked this more than once – that our concern about the present and the future must not make us fail to

⁽¹⁾ «L'inaugurazione del 414° anno dell'Accademia Nazionale dei Lincei è una grande occasione per rinnovare a lei, illustre Presidente, e a tutti i Soci il mio partecipe saluto unito all'apprezzamento per il costante impegno nella ricerca scientifica e nella divulgazione della conoscenza del patrimonio culturale nel nostro Paese.

La Cerimonia di oggi è un evento istituzionale che si inserisce nel solco di una tradizione che si rinnova periodicamente, per riaffermare il ruolo di una comunità accademica testimone e promotrice di alti valori civili e sociali, luogo di creazione e sviluppo della conoscenza, di promozione del sapere critico, di formazione etico morale.

L'autorevolezza degli studiosi e le antiche, consolidate radici dell'Istituto testimoniano il suo indiscusso prestigio, valorizzato da molteplici iniziative, caratterizzate da studi rigorosi, arricchiti nel tempo da temi di indagine che riflettono le sfide della contemporaneità.

La peculiare vocazione dell'Accademia a coniugare tradizione e innovazione in una prospettiva ispirata ai valori di un autentico umanesimo e l'attività intrapresa nella condivisione dei saperi in un proficuo scambio tra ricerca e società civile, contribuiscono alla creazione di competenze professionali avanzate e allo sviluppo di un esemplare modello culturale, valore fondante della coscienza civile e fattore di progresso, di coesione e di evoluzione sociale.

Nel ricordare il fecondo e storico legame esistente tra l'Istituzione e la Presidenza della Repubblica e nel complimentarmi con i vincitori dei prestigiosi premi che oggi vengono conferiti, formulo a tutti i presenti i migliori auguri di buon lavoro. Sergio Mattarella».

recall our past. This has its roots in the late Renaissance when the Accademia was founded and continued with our first re-foundation during the Italian Risorgimento and with the second re-founding in the Republic.

As usual, I first turn to the Members of the Lincei in the belief that in the coming academic year they will continue to offer all their knowledge, culture and dedication to the Academy. I am also aware that the organizational work in support of our activities is hard and challenging because of the scarcity of resources and staff. My own commitment is also heavily demanding and is made sustainable only through the support of an excellent Executive Board (composed of Lamberto Maffei, Maurizio Brunori, Pietro Rescigno, Giancarlo Setti and Annibale Mottana, Fulvio Tessitore and Roberto Antonelli) and with the help of a brave technical and managerial staff, efficaciously coordinated by our Chancellor Ada Baccari.

As in the past, I now turn to the new Italian and foreign Members who today officially join the Lincei after a complex procedure of co-optation. In my opinion, such a procedure highlights their scientific excellence as well as their cultural wisdom, as they express a sharpness of view in which science and culture, deeply rooted in history, do contribute to social progress and the common good for human development. For this reason, our interdisciplinary nature – which characterizes the dialogue between the two Classes (Physical, Mathematical and Natural and Sciences and Moral, Historical and Philological Sciences) – and our internationality – which is not a fashionable whim but the open-mindedness that 180 foreign members of 21 different nationalities do bestow the Lincei with – are of paramount importance.

I remind all members not to overlook our statute, in particular its 1st article that I have the duty to quote in full:

- «1. The Accademia Nazionale dei Lincei, an institution of higher learning based in Rome, pursuant to art. 33 of the Constitution, has its own jurisdiction and carries out institutional duties in compliance with and within the limits of the State laws.
2. The Accademia Nazionale dei Lincei is formed by its Members and such an associational composition characterizes its structure and activity.

3. The Accademia aims at promoting, coordinating, integrating and spreading scientific knowledge at its highest level in the framework of the unity and universality of culture».

2. Institutional life

2.1. Institutional activities are carried out mostly in the **two Classes**.

They include scientific meetings scheduled on the second Thursday and Friday of each month as well as many other initiatives, like conferences and seminars, which take place throughout the whole academic year. The 2016-2017 agenda is already crowded and it is therefore impossible, given our limited time, to illustrate it in full. I shall only mention that about 70 initiatives are already planned. On top of these, those of the Centro Linceo Interdisciplinare “Beniamino Segre” and the Donegani Foundation must also be recalled.

The range of our activity is therefore encouragingly wide, although this should not lead to fragmentation. Therefore, in the joint meetings of the two Classes, along with monthly meetings for statutory and management purposes, Conferences are also held whose scientific and/or cultural and/or political-institutional nature focuses on wide thematic issues, rather than on single branches of learning. In the coming academic year, I have quite clearly distinguished two categories of such meetings.

- The «**Conferenze Lincee**», which are dedicated to the memory of a Member of the past; however, they do not retrace his or her accomplishments but rather highlight their impact in the field of science-policy and culture. The aim is clear: to recall the past to cast our gaze on the present and into the future. These conferences are held mainly by Members of the Lincei Academy, but also involve academicians and specialists outside our sodality. This year's conferences are:

- “Sabatino Moscati” Conference, held by Tito Orlandi on *Il Centro Linceo Interdisciplinare “Beniamino Segre”: origini, sviluppo, prospettive* (Thursday, 10 November 2016).
- “Vito Volterra” Conference, held by Massimo Inguscio on *La complementarietà delle scienze per il progresso: passato e futuro del CNR* (Thursday, 15 December 2016).

- “Quintino Sella” Conference, held by Carlo Doglioni, on *Rischi e risorse naturali: dal passato al futuro delle geoscienze* (Thursday, 12 January 2017).
- “Thomas Ashby” Conference held by Christopher Smith, on *Ricerca Internazionale: benefici e barriere* (Thursday, 9 February 2017).
- “Jan Tinbergen” Conference, held by Enrico Giovannini on *Lo sviluppo sostenibile: utopia o futuro possibile nell’era dell’Antropocene?* (Thursday, 9 March 2017).
- “Galileo Galilei” Conference, held by Ada Yonath on *Thoughts about the origin of life* (Thursday, 11 May 2017)

As one can see, out of these six Conferences, four are dedicated to Italian Members and two to foreign ones.

- The «**Conferenze istituzionali**», which this year are being held by eminent personalities outside the Academy who, because of their position, experience and competence, can offer a first-hand survey on institutional, political, social and economic issues. For us at the Lincei such opinions are essential, as we do not want to rely just on the mass-media mainstream. So far, the conferences planned for this year⁽²⁾ are:

- Herman Van Rompuy, (President emeritus of the European Council) *Europe means more than just crisis* (Friday, 16 December 2016).
- Giovanni Canzio (First President of the Italian Court of Appeal [Corte di Cassazione]), *La motivazione della sentenza e la prova scientifica: “reasoning by probabilities”* (Friday, 13 January 2017)
- Dario Franceschini (Minister for the National heritage [dei Beni e delle attività culturali]), *Cultura e turismo per la crescita del Paese* (Friday 10 February 2017)
- Stefania Giannini (Minister of the Education, university and research), on university and research related issues (Friday, 10 March 2017; title to be communicated).
- Francesco Greco (Procuratore Capo del Tribunale di Milano), on jurisprudential and economic issues (Friday 12 May 2017; title to be communicated).

⁽²⁾ During the Academic Year, the following changes have taken place: on Friday 10 February 2017, Paolo Grossi (Presidente della Corte Costituzionale), held the Conference *La Corte Costituzionale: una valvola respiratoria per l’ordinamento giuridico italiano*; the Conference of Minister Franceschini was held on Friday 10 March 2017; the scheduled Conferences of Minister Giannini and Dr. Greco have not been held.

2.2. The Committees. As I stated in opening and closing the former academic year, I believe that the Committees play a highly relevant role. Maybe I have not stressed that strongly enough and therefore their importance deserves to be highlighted up again. Since part of the Committees is made up of Members of the two classes, in the Academy they clearly cast a unifying character on certain subjects. In particular, the following Committees belong to this category:

“History of the Academy” (Chair Tullio Gregory, with 5 members), “Environment and great Natural Disasters” (Chair Michele Caputo, with 13 members), “University Problems” (Chair Fulvio Tessitore, with 10 members), “Research issues” (Chair Giorgio Parisi, with 10 members). These Committees have produced important documents that have often been sent to institutional bodies (such as the President of the Italian Republic and the Government). This is a strategic approach that I hope we can strengthen in the oncoming academic year in that framework of *pro-veritate* advice that many academies provide the institutions of their country with, on their own field of knowledge. The Lincei never protect vested political or personal interests, careers or income, as they freely endeavour for the Italian scientific, cultural and civil common good.

Other relevant committees, on which I focused in my closing address of the past academic year, are actively working, although not on an interdisciplinary level; other committees, which have been inoperative for years, will be replaced by other bodies that are currently arranged as Working groups. I shall just mention two of them: one is the Working group coordinated by our Member Luciano Maiani, which is relaunching the Amaldi Conferences on nuclear energy and international security issues; the other is a more informal, yet very tight team, which has long worked on European issues.

2.3. The publications.

Our intense editorial activity will of course continue, even if I believe that some innovative steps should be taken to selectively give more weight to our international coverage. I am sure this shall not be too difficult to achieve,

considering the excellent quality of our works. We only ought to implement some international standards.

3. The international relations (CORINT)

This branch at the Lincei is led by the Commissione Relazioni Internazionali (CORINT) (Committee for International Relations) that I chair myself and which is made of 8 members (Maurizio Brunori, Sergio Carrà, Carlo D'Adda, Lamberto Maffei, Giovanni Seminara, Antonio Sgamellotti, Mario Stefanini, Giancarlo Vecchio) and is complemented with two observers (Bruno Carli and Cristina Marcuzzo).

Since 2013, the reconstitution of the Committee has breathed fresh life into the international relations with new initiatives, now in progress. I wish to mention two of them in detail.

3.1. International associations and agreements with other countries

National Academies are very dynamic in science and culture policy, while just a few pursue scientific research since this is usually done in Universities and Institutes. Instead, the Academies closely follow the macro-evolution of natural sciences and humanities and their impact on people, society and nature. On this basis, diplomacy and scientific-cultural policy are pursued internationally in a dialogue with other Academies and with equivalent supranational Bodies to call the attention of the respective Governments on such compelling issues.

The Lincei must strengthen their diplomatic action to acquire more weight above all in Europe and the Mediterranean, where the Academies of France, Germany and the UK are very powerful.

At present, the Lincei participate in six networks, both European and international, which gather all the scientific Academies in the world. Such an interconnected framework is extremely important for the dialogue between peoples and cultures.

We were - and still are - on the Executive boards of many of these networks. We are therefore grateful to our Member Maurizio Brunori for what he has

achieved during his two just concluded three-year terms as president of EMAN (Euro Mediterranean Academic Network); to our Member D'Adda, who represents the Academy in the ALLEA Board (All European Academies); to our Members Marcuzzo, Orlandi and Vecchio who, again within ALLEA's activities, represent the Lincei in various working groups: respectively e-Humanities, Social Sciences and Humanities and Science Education. We also wish to thank our Members Carrà and Carli, who represent us in the EASAC (European Academies Science Advisory Council). Finally, we would like to express our best wishes to our Member Stefanini as he has been now elected in the Executive Committee of the IAMP (already InterAcademy Medical Panel, today IAP for Health) of which the Academy of the Lincei is one of the associates.

Moreover, the Academy has bilateral agreements with 14 national Academies (of various continents) and there is a standing agreement with the Association of Swiss Academies and the Balzan Prize Foundation. We also often receive offers to enter other bilateral agreements; of course, we always consider these offers, also regarding their cost.

3.2. G7: Italy in 2017

As we have recalled, in 2017 we shall host the «G7 of the National Academies» which foreruns the political and institutional G7 that will be held in Taormina on the 26th and 27th of May. The three issues on which we are working are:

- Cultural heritage: building resilience to disasters, under the guidance of our Members Giovanni Seminara and Antonio Sgamellotti, who coordinate a large multidisciplinary working group.

On these issues, two important international preliminary conferences were held. The last one, in October, led to the drafting of «The Charter of Rome on the Cities of Art Resilience to Natural Catastrophes» that I have signed on behalf of the Lincei, together with prof. Volker ter Meulen, co-Chair of the IAP (InterAcademyPartnership), an international organization that encompasses about 100 national science academies around the world.

- New economic growth and technosciences, of which I am responsible for, flanked by Sergio Carrà and a large multidisciplinary team. This issue has a

predominantly economic mark, as it is clear that without this viewpoint the techno-scientific potential would not result in the productive and innovative effectiveness that development calls for. This issues were heralded in many conferences held at the Academy of the Lincei in the last years.

- *Aging society: neurological epidemics* (Population aging and the socio-economic impact of neurodegenerative diseases), guided by our Members Maurizio Brunori and Lamberto Maffei assisted by other Members of the Accademia dei Lincei.

Financial help to support these burdensome initiatives within the G7 has been provided by Intesa-SanPaolo, the Edison Foundation and Mapei to whom we are grateful.

It is our duty now to announce the direct involvement of Prime Minister Matteo Renzi who, through his staff, follows our preparation of the G7 of the Academies in his belief that it represents a highly relevant initiative that complements the political and institutional G7 that will be held in May. It appears clear, therefore, that our Prime Minister does not underestimate the importance that other countries attach to the G7 of the Academies, with Germany that stands out with Chancellor Merkel's personal support.

3.3. The G7 of the scientific academies and our innovations

In 2005, the Royal Society launched the G7 of Science Academies. The participation criteria kept changing, according to the invitation format of each hosting Academy. However, science academies of the G7 organizing countries have always been included. Russia has also organized two meetings when the G8 was held. Two G7 of the Academies were held in Germany and Japan. One was held in Britain (Britain renounced to host a second meeting which was then moved to India). Canada, France and the United States also have had one G7 each.

In the 2017 G7, the second held in Italy, two main innovations will be introduced compared to the past.

The first innovation is that, upon the experience of the past G7, we will make the most of our interdisciplinary nature that is almost unique within the great academies. In fact, in almost all other countries, there is a clear distinction between physical, mathematical and natural sciences and the humanities. And this emerges noticeably in the “statements” in which integrating socio-economic issues are very often missing. Without such a complementary approach, it would be hard to shape and implement science policies aimed at a “new development”.

The second major innovation will consist in the invitation that the Lincei will address to the main international academic organizations (such as PAH, ALLEA, EASAC, which also include all the main areas of the world) to participate in the G7 as observers. We will also invite the TWAS (Third World Academy of Sciences), the International Academy based in Trieste, established to promote the progress of science in developing countries. The circumstance that this organization is based in Italy and is financed by our Country through UNESCO highlights the potential reach that our scientific and cultural policy may have in the countries of the Southern Hemisphere.

4. Europe: reform and a new start, 60 years after

In 2017, the 60th anniversary of the Treaties of Rome will be celebrated and I believe that, because of their history, their present and future perspective, the Lincei cannot stay silent. The European commitment of the Accademia dei Lincei has marked our entire post-war period (since the early commitment of our Member Luigi Einaudi, then first President of the Italian Republic), up to the present day. We have recently reinforced such a commitment with many meetings and events, like the important conference, held in November 2014, titled «Where is Europe going?» (that I promoted with the Lincei Members Enzo Cheli and Franco Gallo and that was closed by a speech by Herman Van Rompuy, who was President of the European Council at the time). Another token of our commitment is the splendid exhibition, still up, «The books that have made Europe. Latin manuscripts and novels from Charlemagne to the invention of printing» (whose arrangement and success must be credited to our Member Roberto Antonelli). We also offered essential support to the

continuation of the ALLEA award *All European Academies Madame de Staël Prize for Cultural Values*.

This is why I invited Herman Van Rompuy to hold the first Institutional Conference of the coming year, on December 16, on the theme «Europe means more than just crisis».

The British Academy has also warmly invited us to co-organize with ALLEA a Conference in 2017. In spring, once our commitment to the G7 is concluded, I hope we might support this initiative, with a view to accomplishing it in autumn.

I think that two of our greatest and dearest friends would be very pleased. To one of them, the President of the Republic Carlo Azeglio Ciampi, goes our affectionate remembrance. We will soon turn to the President Emeritus of the Republic, Sen. Giorgio Napolitano, whose constant support honours us, for his assistance to the organization of this meeting.

5. Promoting research excellence; the awards

Today we will award the Antonio Feltrinelli Prizes for Physical, Mathematical and Natural Sciences, and the Prize for an exceptional enterprise of high moral and humanitarian value. I shall praise the merits of the winners shortly. I am also very pleased to announce that the call for the 2017 Antonio Feltrinelli Prizes (expiring on October 31) was positively answered with a large number of nominations. I am referring not so much to the Awards in the field of «Letters» and the one for an «outstanding enterprise», which have decades of tradition, but rather to the «Feltrinelli Giovani» banned for Astronomy, Physics, Mathematics, Medicine, for which we have received quite a few nominations. I recall that this award is addressed to Italian scholars under the age of 40 who have achieved results of outstanding originality, independence and international significance thus contributing, even in a future perspective, to strengthen Italy's position in the scientific field. I am very happy with this achievement, which I strongly fostered in the first year of my presidency, in the belief that one of the tasks of the Academy, despite its being an association marked by a scientific wisdom which is usually reached after a long course of study, experience and research, is to valorise the excellence of young scholars.

I am therefore grateful to the Executive Board, and especially to Maurizio Brunori who assisted me in this initiative, and to the Assembly that has unanimously approved it. The success of the award will now rely on the Evaluation Committees – in which, incidentally, also some foreign Member should be included – who carry the weight of a heavy responsibility. It would be very interesting if we could make the most of the ever-growing scientific knowledge of these young scholars through a long-term interdisciplinary body capable of standing on the frontier of the research.

6. Conclusions

Lastly, I should mention all the **Funds** and **Foundations** related to the Lincei, which almost always rely upon the generosity of benefactors. Of these, the most recent is, as you know, the Foundation “I Lincei per la Scuola” whose Honorary President is Sen. Giorgio Napolitano, President is Lamberto Maffei (who conceived the Foundation), Vice President is Luca Serianni, while Francesco Clementi coordinates the Scientific Board. A fine and commendable initiative.

As for the Lincei’s **Interdisciplinary Centre “Beniamino Segre”**, yesterday we could attend the remarkable «Conferenza Lincea» held by Tito Orlandi who illustrated the Centre’s «Origins, development and future aims», dedicating his speech to our past President Sabatino Moscati. I wish to warmly thank our Member Tito Orlandi who has just concluded his second term as Director of the Centre. The Centre has accomplished many a goal and much more it will achieve with the new Executive Board.

I also wish to thank Fulvio Tessitore who has just concluded his second term as President of the National Academic Union.

I also sincerely thank Ing. Pierluigi Ridolfi who, after more than a decade of commitment, has left the presidency of the **Associazione Amici dei Lincei**, as he is now the Association’s Chairman Emeritus. We trust that he will remain with us for a long time to come.

I give my warm welcome, with congratulations and best wishes to the Cavaliere del Lavoro Umberto Quadrino who has recently been elected

president and has already set up a Steering Board of outstanding entrepreneurial stature at an international level.

I have hinted at the valorisation and award of excellence. I am therefore pleased to announce that the 2016 **Balzan Prize** – that is commonly considered at same level as the Nobel – was awarded to our Members Piero Boitani for Comparative Literature and Federico Capasso for Applied Photonics.

To them I offer our heartfelt congratulations that I extend to the many Members of the Lincei who have received national and international awards. They increase the prestige of the Lincei whose main strength, however, remains always being a community of learning that defies time.

Before closing our ceremony, I wish to thank the President of the Constitutional Court, our Member Paolo Grossi, who is among us, for his commendable participation in the activities of our Academy. Finally, I wish to read out the telegram that I have just received from Prime Minister Dr. Matteo Renzi, to whom I give my heartfelt thanks for his attention – as I already stated – toward the Lincei and their specific initiatives.

«Dear Professor, thank you for your invitation to the opening Ceremony of the 414th academic year of the “Lincei” and for having kept me up to date, during the 413th year, with the Academy’s main initiatives, including the recent conferences on “Resilience” and “Industry” in October.

Being unable to attend, I wish to give you my best wishes for your work in the wake of your history. As I stated last December in my conference at the Academy on “Science, culture and art: the role of Italy”, the Accademia Nazionale dei Lincei is a resource for our Country and a precious asset for the contribution it gives and can give also to civil institutions and progress.

In particular, in 2017 the Lincei will have to organize the G7 of the Academies regarding which I am very pleased that the three selected topics are on the “Resilience of art cities to catastrophes”, on “Economic growth and innovation”, and on the “Social costs of an aging population”. These are three of the most topical issues in our developed countries but they also involve the developing countries and the North-South relations.

I will be pleased to receive the Lincei and other academies of the G7 in May to bring your documents to the attention of the political and institutional G7. The Prime Minister Matteo Renzi»⁽³⁾.

With the assurance to always aim at achieving the best results, I now declare open the 414th year of the Accademia Nazionale dei Lincei.

⁽³⁾ «Caro Professore, la ringrazio per l'invito alla Cerimonia di apertura del 414^{esimo} anno accademico dei "Lincei" e per avermi tenuto al corrente nel corso dell'anno 413^{esimo} delle principali iniziative tra le quali i recenti convegni di ottobre sulla "Resilienza" e sulla "Industria".

Nella impossibilità di essere presente desidero farvi pervenire i miei più fervidi auguri di buon lavoro nel solco della vostra storia. Come dissi nella mia Conferenza presso di voi nel dicembre scorso su "Scienza, cultura ed arte: il ruolo dell'Italia", la Accademia Nazionale dei Lincei rappresenta un patrimonio per il nostro Paese e un valore per il contributo che dà e che può dare anche al progresso civile e alle istituzioni.

Nel 2017, in particolare, i Lincei dovranno organizzare il G7 delle Accademie con riferimento al quale sono molto lieto che i tre temi scelti siano sulla Resilienza delle città d'arte a eventi dannosi, sulla Crescita economica e innovazione, sull'Invecchiamento e costi sociali. Si tratta di tre temi di assoluta attualità per i Paesi sviluppati ma anche per quelli in via di sviluppo e per i rapporti Nord-Sud.

Sarò perciò molto lieto di ricevere i Lincei e le altre Accademie del G7 in maggio per portare poi i vostri documenti alla attenzione del G7 politico istituzionale. Il Presidente del Consiglio dei Ministri Matteo Renzi».