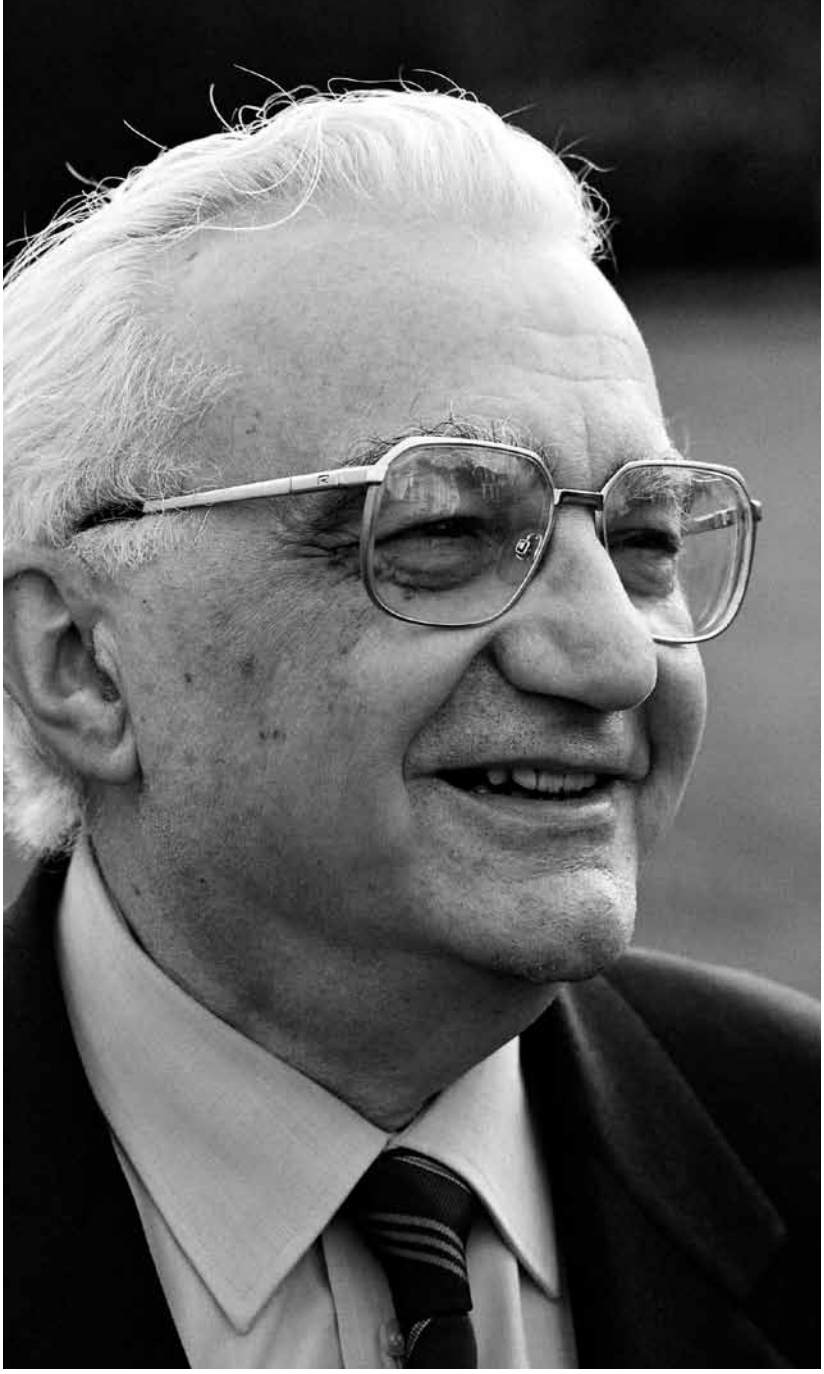

Maestri
della Sapienza

Antonio Ruberti

Claudio Gori Giorgi

Sapienza
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Collana Maestri della Sapienza 3

Antonio Ruberti

Master of the past, master of the future

Claudio Gori Giorgi

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Preface

This volume is the first in a new series from our Publishing House: *Maestri della Sapienza (Masters of La Sapienza)*. The first subject, a biography of Antonio Ruberti, has been chosen for a fundamental reason: the Professor, who dedicated 25 years of his extraordinary career to our University, serving as its Rector from 1976 to 1987, belongs to that special category of people who have the ability to imagine and build the future. As in few others, his practical sense allowed him to turn into reality the force of his ideas thanks to his vocation as a researcher. This rare combination was a constant throughout his life, in which science and politics, culture and power happily coexisted. This may be a unique case in the history of the Italian Republic.

After Antonio Ruberti graduated in Engineering he immediately set to work as a researcher with the *Fondazione Ugo Bordoni*. At the age of 37 he won a competition for the post of university professor, and in 1964 took up the chair of *Automatic control* in the Faculty of Engineering of La Sapienza University.

In 1969 he founded (and directed until 1976) the *Istituto di Automatica (Institute of Automatic Control)* of La Sapienza, now the *Dipartimento di Ingegneria informatica automatica e gestionale (Department of Computer, Control, and Management Engineering)*, bearing his name, and the CNR's *Centro dei sistemi di controllo e calcolo (Control systems and computation centre)*, which is now called *Istituto di analisi dei sistemi e informatica (Institute for systems analysis and computer science)*, also bearing his name. In 1973 he was appointed as Dean of the Faculty of Engineering. In 1976 he was elected as Rector of the University.

His long *cursus honorum* at La Sapienza (ending in 1987, when he was called to serve as government minister) coincided with two his-

torical and radical changes to the structure of Italy's university system. The first relates to the liberalisation of university access, a project promoted by senator Codignola, with Ruberti being a fervent adherent. This constituted the so-called *università generalista*, open to all deserving students, which would require profound changes. The phenomenon would take on relevant dimensions in our University, thanks to the power of attraction of La Sapienza over youngsters aspiring to go on to top quality and prestigious higher education. The second change relates to the structure and governance of Universities, which until 1980 were organised as peripheral bodies of the Ministry of Education and divided into Faculties. Faculties in turn were made up of various institutes, run under the somewhat monocratic authority of full professors.

It was the so-called *university of the barons,* a mocking term that was more unjustified than might be imagined. The combined result of these two changes would in a few years make La Sapienza Europe's largest university, with over a hundred thousand students and thousands of lecturers. It was in this unprecedented setting, steeped in difficulty, that Antonio Ruberti – a *"man full of charisma, a multiplier of time and human energy, capable of motivating people and stirring up enthusiasm, with a force that did not fade over the years",* as one of his favourite pupils, Fernando Nicolò, said – would add to his skills as researcher and scientist the farsightedness of a great manager. This experience would pave the way for the reforms that he would develop over the years both in La Sapienza and as government minister.

From 1987 to 1989 Ruberti headed the Ministry for *Scientific and technological research* which, in his second term of office (1989-1992) became, significantly, the Ministry for the *University and Scientific and technological research*. His work as government minister was based on two main tenets:

i. Italy had to change its model of development, from one in which research was given low priority to another considering research as an engine for modern and competitive development;
ii. to bring to the political culture of Italy the belief that research had to be given suitable funding and investments.

Thanks to Ruberti Italian spending on research reached a peak that would never be seen again: 1.2% of GDP.

The year 1989 was the year of *his* reform of the University, based on the belief that a change of governance and a significant push to spread

the scientific culture had to go hand in hand. The Ruberti reform (Law 168/1989) centred on the self-governance of Universities, which became architects of their own destiny. It was Ruberti who promoted the *Week of scientific culture* in 1991. The distance learning structure was created, developing more fruitful collaboration with the business world and the workplace, which attached more importance to merit. Ruberti sought to open doors, but also to favour those who make an effort and achieve results. It was a reform that had to battle through tough student protests, which led to the creation of the so-called *Panther* movement.

Ruberti was a charismatic figure, willing to discuss matters, and not at all inclined to abdicate his responsibilities. The approach to protesters was simple and concrete: to listen, discuss, reflect. And then decide. Paraphrasing the definition given by the great poet Walt Whitman, bard of the foundling American nation, we can rightly say that Ruberti was a *scientist of democracy*, impervious to populism and to the most ambiguous flattery of politics. The enthusiasm of the researcher combined with the solid and determined logic of the scholar: a show of foresight and practicality on the part of one having to deal with and change reality. This enabled him to move into politics and resulting positions of power, without the fear of getting caught up in the quagmire, and to practise one and the other without arrogance and tyrannical temptations.

Ruberti "went into" politics formally in 1992, when he was elected as MP in the lists of the PSI (Socialist party) of the time. This experience would last just one year, when in 1993 he resigned in order to take up the post of European Commissioner for "science, research, development, education, training and youth". A long title that says a lot about Community red tape. Ruberti was appointed vice president of the European Commission, chaired by Jacques Delors for the third time.

It was not love at first sight for Delors. The great Europeanist would have preferred politically more mature appointments. But very little time elapsed before he was able to recognise the worth of Ruberti. Delors and Ruberti would form a relationship of extraordinary mutual esteem and become close friends. The two years of his European term of office (in 1996 returning to Italian Parliament) showed how far he had set his sights. His basic conviction was that the European Community could not have 15 (at the time, now 27) disconnected scientific strategies, but would have to quickly build a common space for scientific

and research activities. He was well aware that without this strategic resource and without the necessary funding for the relative framework programme, the single currency Europe would never become an international leader in the field of knowledge, and thus of the economy.

The actions of Ruberti the European Commissioner were as always concrete ones: launch of the fourth framework programme for research, cooperation agreements with former Soviet countries and European multinational organisations, such as CERN and ESA; education and training programmes, such as Leonardo and Socrates; creation of the *European Week of scientific culture* and the *European Science and Technology Assembly*.

Here we might ask: can we say today that Italy and the European Community have been able to fully exploit the ideas, suggestions, plans and reforms issuing forth from the unstoppable human dynamo that was Antonio Ruberti?

Much of his concrete work remains, a sound base for future development and growth, yet the scope of his vision is still to be realised both in our country and in Europe. Nevertheless, we are proud to have had him as one of our masters at *La Sapienza*, an institution which, thanks in part to him, constitutes a wealth of expertise, culture and research that honours and serves Italy.

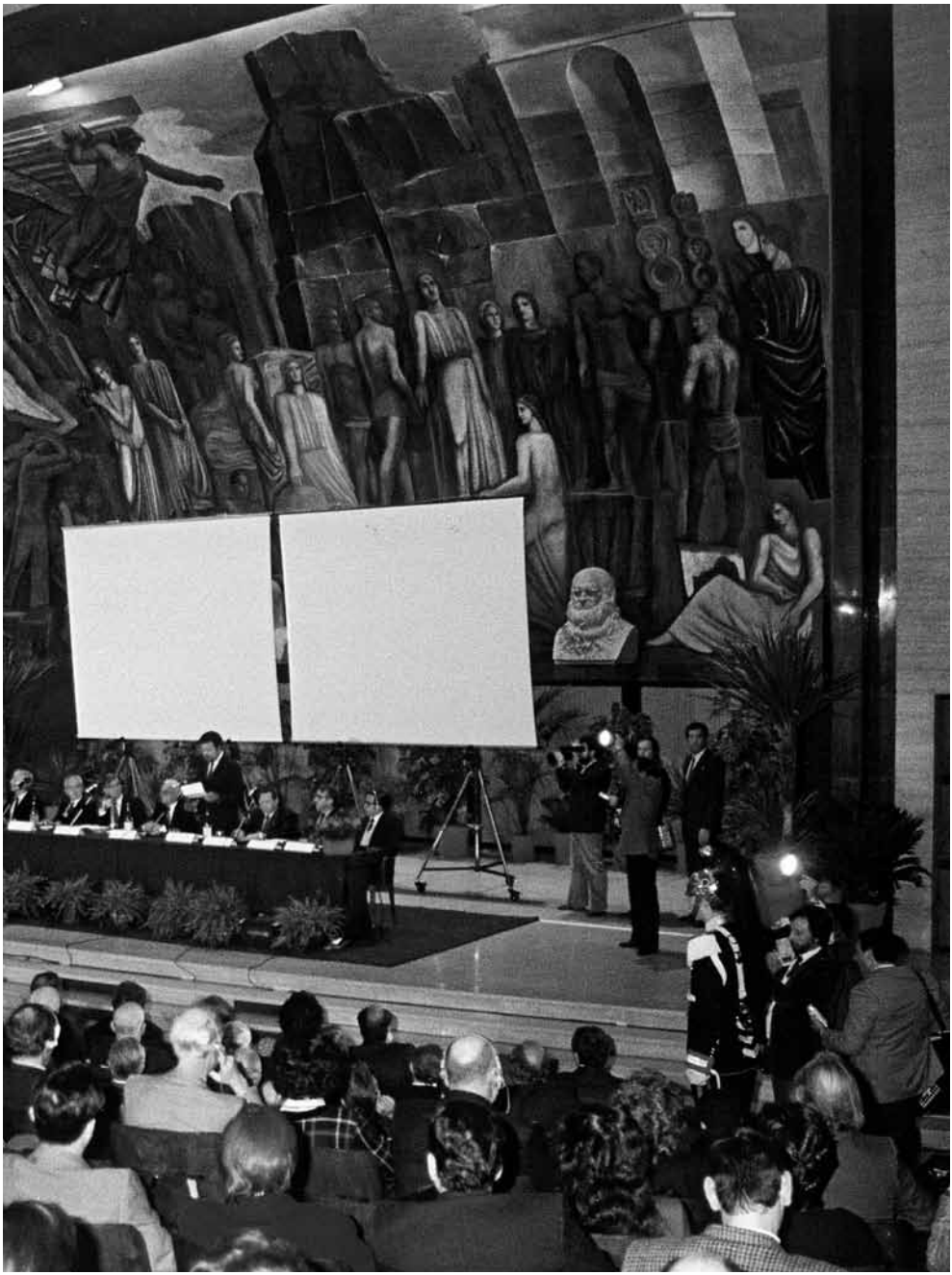
Antonio Ruberti is a pillar of this construction, which has been solid for the last 710 years, and will not be shaken by time.

Rome, December 2013

Luigi Frati, Magnificent Rector of the University

Antonio Ruberti sworn in as Minister for the coordination of Initiatives for Scientific Research, X Legislature, 1987. (Ruberti Archive)

At the dawn of the year 2000. Scientific findings from space missions to Halley's Comet and future projects of the Inter-Agency Consultative Group (Iacg). 6 November 1986, La Sapienza University, Rome, Main Hall. Ceremony organised by International Center for Relativistic Astrophysics (Icra). (Ruberti Archive)



Introduction

Do not cut away, scissors, that face,
that one and only from a memory slowly emptying,
Do not diminish that intent gaze
within my everlasting fog.

(Montale, transl. A. Fitzsimons)

Before working with and becoming his friend, I met Antonio Ruberti in 1969 when, freshly graduated and attracted to his lectures, I introduced myself and asked him for help in starting my university career. Since then, and up until his death in the year 2000, I was always in close touch with him, except for the two years when he was European Commissioner. But let me reassure you, the reader, that apart from this introduction I will be keeping myself well out of the story.

This book seeks to be above all a testament founded on the memories from that time. Our memories can of course become hazy over time, and where possible I have cross-checked what I have written, noting sources in the footnotes. Where this reference is absent, memory has been my only guide, and I alone will be responsible for the errors and shortcomings of this work.

Ruberti was an influential figure, whose life works have been appreciated more and more as time has passed. Rightly we should ask whether he still has something to say to us. It is my hope that, within the bounds of my modest means, this book may to some extent answer this question, bringing back to life Ruberti the man, his choices, values, successes and failures, capabilities and limitations.

I have sometimes had the feeling, while working on this book, that Ruberti has been standing in front of me. I can anticipate to the reader that the value he most cherished was the commitment to promoting the education of youngsters in the sphere of research, and seeing their potential realised, with the pleasure of a midwife seeing new life being born. If this biography is capable of encouraging a few young researchers to follow his path, to work not only for his own career but also for the collective growth of the "university-research system", to

work so that other youngsters can tap all their potential, here and now, in this country, in short to build the future, I believe that Ruberti will reappear before me, and will be smiling.

1. Starting out

In this first chapter we make no attempt to provide a full and accurate biography. Our aim is merely to look at the first steps in life and seek the germs of the future man, of his greatness and his limitations.

"If you can tell the story of your life, you have never lived", oriental wisdom warns us. Ruberti certainly lived an intense life, one that is quite difficult to encapsulate in a simple narration. And although a vast collection of his addresses, essays, publications, speeches, books, articles and teaching materials is available, largely kept in the archives looked after by his family[1] and partly made available by the Foundation bearing his name[2], the picture that emerges from these materials is superficial and not even totally accurate, since in his actions the man was very different from how he appears on paper, his character certainly richer and more varied.

1.1. Studies

Antonio Ruberti was born on 24 January 1927 in Aversa, a Norman town in the province of Caserta about 25 km to the north of Naples. His father was a military officer in the 1930s, and was posted to Forlì, where his son attended primary school. Attaining the grade of colonel, he then took command of the military gaol of Gaeta, and the young Ruberti had started attending the lyceum in the nearby Formia. In the final years of World War Two the family, like many other evacuees,

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1 Ruberti, A. *Il capitale immateriale*. Florence: Giunti, 2011. Addendum by Margherita Bettini Prosperi.

2 Cf. the website www.fondazioneruberti.it.

had been loaded onto trucks and transferred to the north, where he experienced a period of struggles, even having to eat nettle soup to survive. Antonio suffered in that period, and lost a year of school. He managed to make up for lost time however, taking his school-leaving examination privately, and obtaining excellent results.

Fig. 1.1. Central station, Aversa. The town was bombed several times by the Allies in August 1943. (Public domain)

At Aversa he met Luisa Andreozzi, who was a little younger than him. The two fell in love. The respective families were related, and lived in the same block. Due to the kinship they did not look kindly on the relationship between the two youngsters, who were not however to be put off.

Ruberti enrolled at the Faculty of Engineering in Naples, travelling to and from his home in Aversa for lectures. One of his masters was mathematician Renato Caccioppoli, who during the Fascist regime had been a staunch anti-fascist, being arrested by the political police and released only at the price of being considered a madman. Perhaps it was this example, combined with his experiences during the war, that explains why Ruberti was a committed anti-fascist.

Ruberti took an exam with Caccioppoli[3] as examiner. The exam started badly, with the student being unable to answer the first question correctly, but then he went on brilliantly. At the end Ruberti, who was very keen to do well in that exam, asked for the first question to be repeated. It was, and he answered it perfectly the second time, receiving a distinction.

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[3] This episode, like many others in this chapter, was recounted to the author by Luisa Ruberti.

1.2. From Aversa to Rome

As a student he was already attracted to research work, and asked his thesis supervisor if he could stay on in the university environment. Resources were scarce at Naples University, however he was offered a scholarship in Rome, at the Fondazione Ugo Bordoni (FUB). Antonio Lepschy, a friend and colleague of Ruberti at the outset, writes:

> [He graduated] on 4 August 1954 with a first-class honours degree and publication recommended. […] He was sure he wanted to do research. The conditions at that time at Naples University prevented him from carrying on his studies there, but he was given a letter of presentation to be handed to lecturers at Rome University. There too conditions prevented the availability of an acceptable position, however they did manage to get him a scholarship at Fondazione Bordoni[4].

Fig. 1.2. Group photo for engineering degree graduation day in Naples, August 1954. (Ruberti Archive)

Ruberti accepted immediately, going against the wishes of his family, who would like to have seen their son go into the profession, which would have been much more profitable.

The grant was given to study a new, little known discipline: automatic control. The name of this discipline will come up often, so we should have a definition of it. In Ruberti's own words:

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[4] Lepschy, A. *L'automatica in Italia*, taken from a note in the journal *Automazione e Strumentazione* 45, no. 9 (October 1997): 91-97, and from "Per un ricordo di Antonio Ruberti." *AEI* 87, no. 12 (December 2000): 47-51.

> *Control* is taken to mean the action or set of actions designed to vary a given value by the desired amount. […] We can speak about control actions when the value being controlled is at a higher power level than that of the value from which control actions derive.
> The control is said to be *automatic*, generally in contrast to manual, when the corresponding actions are performed by devices capable of replacing in full or in part human intervention.[5]

Luisa Ruberti and Lepschy agree about the fact that graduate Antonio *was certain he wanted to do research work*. The only offer he had received, a scholarship at Bordoni, brought with it two difficult choices: to move to Rome, with all the economic difficulties this entailed, as well as a change of setting, and to commit to an area of research about which he knew nothing, seeing that he had never come across the subject of automatic control during his university studies[6]. On the other hand, postwar reconstruction was in full swing, and the market was on the lookout for engineers. The young graduate would undoubtedly have been able to find a good job in the Naples area. The choice he made bears witness to his determination, as Lepschy writes, to enter the world of research: a world that fascinated him, and an activity that would continue to be an attraction for his whole life.

With regard to the foundation he was about to join, Ugo Bordoni had been professor of technical physics at the University of Rome prior to World War Two, before moving on to telecommunications and becoming chairman of Stet, the telephone holding company of the Iri group. Upon his death the foundation for scientific research in the field of telecommunications just created by the Post and Telecommunications Ministry, and based in Roma in Viale Trastevere, was named after him. The foundation had opened a laboratory for *servo-mechanisms*, a term that was then in use.

> Initially the term used was *automatic adjustment*. Then the term *servo-mechanisms* began to be used, and the two names continued to exist, with their various supporters, until the term *automatic control* took their place (first in the singular, as an abstract noun, like *adjustment*, then almost always in the plural, like *servo-mechanisms*, with reference not to the control action but to control systems)[7].

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5 Lepschy, A. and Ruberti, A. *Lezioni di controlli automatici*. Rome: Siderea, 1963 and 1967.

6 Ruberti graduated in Electrical Engineering in Naples, where was no course on automatic control.

7 Lepschy, *L'automatica in Italia*, 1.

1.3. Initial difficulties

So Ruberti took up the FUB offer and moved to Rome. The scholarship consisted of a sum of just 40,000 lire a month, very little to live off away from home. But Ruberti was a proud man, he wanted to show that he could survive on his own, and did not accept family help. He lived in a rented room, ate little at the canteen and made savings here and there so he could go back to Aversa at the weekend and see Luisa. She would prepare packs of biscuits for him to take back to Rome.

After a year the scholarship became a research post, and he was given a salary twice the size of the grant. Ruberti could afford to rent out a three-room apartment, and he married Luisa in December 1955. Due to economic concerns, for three years they waited to have children. Then the situation improved, they had two daughters, and the family moved to a bigger rented home. At this new home one of their daughters, Giovina, became ill, then Luisa followed suit. She joked that it was because the house number was 17, flat number 17, an unlucky number in Italy. During the illness, which was diphtheria, Ruberti lovingly cared for his wife, keeping her at home so as not to be apart from her. So they decided to leave that place as soon as possible.

In 1963, thanks to the sale of Luisa's properties in Aversa, they finally had the deposit needed to purchase the home where they would spend the rest of their lives, in the Monteverde Vecchio district in Rome.

In 1961 Ruberti obtained a lecturing post in automatic control, the first advertised in Italy, and obtained a position at Naples University, where he worked from Thursday to Saturday. The following year he won the position of assistant professor at the University of Rome, and in 1964 he became full professor. We will begin from this point in talking about his research and lecturing activity in the next chapter.

The narration told thus far highlights some of the important aspects of Ruberti's personality: his determination, pride, ability to withstand difficulties, love for his family, passion for research. This sketch will be filled in in greater detail further on.

2. Research and teaching

There is an indissoluble link between lecturing and research at a university. To be able to work as researchers, on which their academic career depends, or should depend, university lecturers must be aware of the final frontiers of their discipline, thus they must read scientific publications, offer criticism and make suggestions for improvements, go into unresolved problems, imagine, experiment, develop and finally put forward their conclusions in a language and according to the standards of the scientific community. Researchers do not blindly accept everything that they read or are told, but submit every step to the scrutiny of their mind and their knowledge, discriminating and looking beyond.

These capabilities are not the result of university studies, and it is rare if not impossible for youngsters to develop them on their own. Usually they are passed on by someone who already possesses them, and to see them grow and flourish in a researcher at the start of his or her career is one of the most gratifying experiences of university life.

These capabilities steer and shape the teaching activity of university lecturers, who when teaching should always bear in mind the mental attitude needed for research. Thus they present, or should present, their chosen subject as a *work in progress* and not as an unchanging and hallowed *corpus* of knowledge. The relationship with students, which cannot be escaped even by those seeking to distance themselves with traditional lecturing, serves as a mirror in which one can see the reflections of one's successes and failures. Seeing the mind of students open up, learning, understanding and then developing their own thoughts, is another very gratifying part of university life.

In short, lecturers-researchers develop and transmit the ability to criticise and to create within their own area of expertise. This is the essential characteristic of the union between teaching and research.

There is no guarantee of course that these capabilities carry on beyond academic life. In other fields of activity university students may show themselves to be naive, short-sighted and conservative. In such cases it means that the union of teaching and research has shaped only that part of their being directly engaged in their work. We must admit, if we are being honest, that this is often the case.

But not in the case of Ruberti. The critical ability and creativity he showed in his commitment to research and to teaching emerged more than anything in his interpersonal relations, his projects, his organisational activity and his political career. This chapter looks at his activity in the dual capacity of lecturer and researcher, with the emergence and development of his attitudes. These qualities will be the focus of the following chapter, dedicated to the management of university activity at all levels.

2.1. The FUB years

In the decade following the end of World War Two, Italy was focused on reconstruction, a phase in which engineering played a significant role. Thanks to the importance of radio communications during the war and, to a slightly lesser extent, the use of automatic control, and with the development of the first computers, what is now called the *information technology* sector witnessed lightning advances. Engineers working in the sector were generally *radio, electronic* or *electrical* engineers. Until 1960 the Italian university, traditionally quite slow in modernising its system, did not have degree courses on new subjects that were spreading rapidly elsewhere. In the field of automatic control the only outstanding figure in Italy was Giuseppe Evangelisti[1], who in 1947 published a treatise on the regulation of hydraulic turbines, which became known worldwide.

In the early 1950s Italy was well behind in the engineering sector in question. The FUB (Fondazione Ugo Bordoni) was created in 1952 with the goal of bridging this gap, firstly through *progress in telecommunications* and then *research into applied electronics*. It soon became a leading research centre in which leading figures in the sector worked, enabling the young, incoming Ruberti to meet and have scientific discussions with them.

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1 Giuseppe Evangelisti was professor of hydraulic engineering in Bologna and national member of the Accademia dei Lincei.

FUB laboratories were run by people of undoubted experience, however this was not the case for the servo-mechanisms laboratory, where Ruberti, as already mentioned totally inexperienced in the area of automatic control, had to work independently. After a few months he was teamed up with Antonio Lepschy[2], a native of Venice and he too a grant holder. The two would go on to form a tight-knit duo. Lepschy writes:

> Ruberti and I enjoyed a great deal of independence, but we also had quite a few responsibilities, having as our contact (almost solely for organisational questions) an official of the Istituto Superiore delle Poste e delle Telecomunicazioni (an excellent person to tell the truth, an engineer with expertise in the area of electrical systems for telecommunications networks, but with no real knowledge of automatic control) and working with him on the teaching front (for a CNR masters course given in the Institute), Prof. Ferruccio Guarnaschelli, a former Italian Navy general, who had a knowledge of automatic control, having worked in the sphere of fire control systems and servo-mechanisms for the aiming of naval artillery[3].

As already mentioned, for young researchers FUB was also an opportunity to meet interesting personalities, such as Giuseppe Evangelisti and Giuseppe Massimo Pestarini, inventor of the metadyne[4]. It was the latter that guided Ruberti and Lepschy' first researches into metadynes used in control systems as electro-mechanical amplifiers and as motors, and in seeking a general theory about commutator machines.

In 1955 Ruberti was awarded a research post in the Foundation, and was able to coopt some youngsters. The publications produced in those years, often drafted in conjunction with Lepschy, related to the control of electric motors or use of the descriptive function for the study of systems comprising nonlinearity, classic topics in that stage of development of automatic controls. The most commonly used mathematical tool was the Fourier and Laplace transform method, making it possible to turn differential equations into simpler algebraic equations. This method was useful only for linear systems. Its use for nonlinear systems presented many difficulties, and few significant results were achieved.

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2 Antonio Lepschy was professor of Automatic control in Bari, Trieste and Padua, where he was also dean of the Faculty of Engineering.

3 Lepschy, *L'automatica in Italia*, 8-9.

4 Giuseppe Massimo Pestarini taught at Turin, Rome and later in the USA. The metadyne is a rotating electrical machine that converts continuous current, raising or lowering its voltage.

Fig. 2.1. In centre of front row Antonio Ruberti and Antonio Lepschy, with other control engineers in 1999 in Rome. (Ruberti Archive)

Another strand of Ruberti's research was that of analogue computers. This was electronic equipment containing variously configured amplifying circuits with which differential equations could be simulated. In the 1950s these computers required dozens or even hundreds of vacuum tubes, which generated great amounts of heat and broke frequently, rendering their use rather undependable. Ruberti developed some circuits to extend their use to simulations of nonlinear equations and to the presence of noise. Valves were later replaced by transistors, and with the development of digital computers this led firstly to a sort of hybrid computer, which Ruberti had a hand in, and then to the definitive move towards modern-day computers.

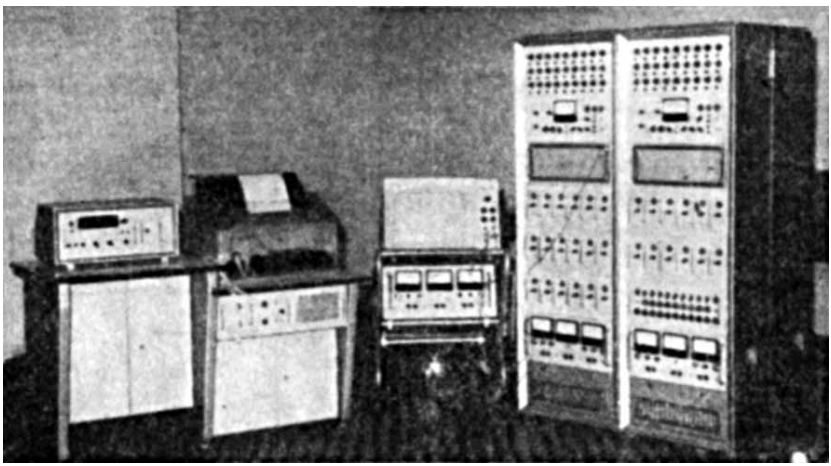

Fig. 2.2. Elwat analogue computer. (Public domain)

In the 1950s publications would appear in Italian journals written in Italian. Neither Ruberti nor Lepschy spoke English, although they could read it. Neither had a driving licence. So they came to an agreement: Ruberti would study English, and Lepschy would obtain a driving licence. And that was what happened[5]. A knowledge of English was necessary for submitting one's researches to the scrutiny of the international scientific community, meeting overseas researchers, developing common projects, taking part in congresses and submitting articles to international peer-reviewed journals. This is what Ruberti called the *internationalisation of research*, which today seems like an obvious requirement, but back then was a novelty.

Around 1960 there emerged, in addition to the mathematical description of control systems based on Laplace's transforms, another description referring to differential equations, with the introduction of the state-space model. This required a mathematical knowledge of linear algebra, differential equations and advanced analysis. Ruberti had had a good mathematical education, going back to his studies in Naples. Behind his desk were texts not common for an engineer, such as Finzi and Pastori's tensor calculus, or Levi Civita and Amaldi's rational mechanics. So he devoted himself to studying state-space systems[6], tackling the problems of transformation from one representation to another. In the same years he also became enthusiastic about the systems approach:

> The belief began to grow, and Ruberti was one of its biggest proponents, that the systems approach was of a vast conceptual and cultural scope, one that would not only inspire but, to an extent, keep within the same ambit, everyone that adopted such an approach, even though they were interested in the most varied sectors, from technological areas to the organisation of "technical" services (transport, power generation, etc.) or services of another type, in the economy, ecology, the environment, biomedical disciplines, and so on.[7]

In 1961, as already mentioned, Ruberti won a lecturing post for automatic control, the first of its type in Italy. The time had come to leave FUB and enter the university world.

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5 Anecdote told to the author by Lepschy in 1973, in Ruberti's presence.

6 In this context, a system is a relationship between values that describe a part that can be separated from the rest of the universe.

7 Lepschy, *L'automatica in Italia*, 17.

2.2. Research activity in the university

In 1962 Ruberti won a competition for an assistant professor post, and moved from FUB to the University of Rome. Then in 1964 he became full professor. His research activity was now focused on the systems described in the state space. More than questions relating closely to controls, he wanted to study the systems themselves, analysing their properties and the ways of representing them.

The internationalisation process was not an easy one. Ruberti commented that peer reviews were very critical towards those who did not have contacts with journals' editorial committees, and he suffered some disappointments. Thanks to funding from CNR, in 1970 he founded and directed a journal, *Ricerche di automatica*, which despite the title published articles in English, with contributions from everyone he was in contact with.

Fig. 2.3. Ruberti addressing the international electronics congress in Rome in 1966. (Ruberti Archive)

In the late 1960s and early 1970s the quality of his researches rose, and he published articles on some structural properties or linear systems and bilinear systems. Written in collaboration with Alberto Isidori and Paolo d'Alessandro, they would appear in leading journals in the sector. The Istituto di Automatica became a centre of research into systems theory, and gained an international reputation, welcoming important visiting professors, including Rudolf Kalman, Roger Brockett, Eliahu Jury and Arthur Krener.

Fig. 2.4. The internationalisation of research: Ruberti speaking at the International IFIP Conference on Cooperation for Information Processing in Rome, 1973. (Ruberti Archive)

In 1973 Ruberti was appointed dean of the Faculty, and time dedicated to research gradually diminished, partly because he had stayed on as director of the Institute. Ruberti reacted typically to this new situation by doubling his efforts, and he continued to carry out good scientific research with Isidori and d'Alessandro, attempting to maintain his rate of three publications a year. When he became rector, he still managed to produce one article a year in collaboration with Isidori.

By the late 1970s the popularity of the systems approach was beginning to wane. The dream of a unifying discipline serving as a base for a host of different disciplines had faded with the realisation that the *corpus* of knowledge processed in the boom period for the systems approach, in the 1950s and 60s, had not been applied convincingly, and every area of knowledge had remained anchored to their own formalisms. There had indeed been numerous misunderstandings right from the start.

> Use of the term "Automatic control" began to be viewed as no longer adequately representative when, in Italian Universities too, the first "Systems Theory" lectures began to be given. The term "Systems analysis" was coined along the lines of "Automatic control", deemed to be indicative of mathematically more rigorous criteria and of concepts not confined to the sphere of technology. There remained some confusion however: the figure of "systems analyst" in the sphere of computer science was not the same as that of the analyst of systems (and control) theory. Electronic engineers spoke about "systems" as opposed to

> "components" in a slightly different way. The adoption of the *system approach* aroused interest in many different fields, including the human and social sciences. In those fields the most commonly used word was "Systemic" (indeed Systemics experts rarely had any idea what was taught in a "Systems Theory" course at the Faculty of Engineering). Other misunderstandings arose about the use of expressions such as "Systems Engineering", "Systems Analysis" and "Systems Science": something much vaguer than the classic theory of dynamic systems[8].

But Ruberti was not willing to accept the decline of systems analysis, and he acted to affirm its central role. In 1982 he wrote:

> [… two] trends have manifested in recent decades as regards the development of science. The first trend has been that of managing not only to predict the evolution of phenomena, but also to exert control over this evolution. The cause and the effect of these two trends is the prevalence of interest in behaviour more than in interpretation. It is within this context that the science of systems is framed, a science that isolates the phenomenon from the universe it is a part of and then connects to it through values that can be modified (input) and values that can be observed (output). The relationship between these values is taken as a system associated with the phenomenon. The system thus appears to be a general concept of a mathematical model, and contains all the potential necessary for its use in many different areas. The general nature of the concept releases it from being defined by special disciplinary contexts, allowing its adoption over a broader scope. The distinction of interactions with the outside universe into inputs and outputs shows up both the problem of predicting and that of control. With the former one must determine the output corresponding to an assigned input, with the latter the input corresponding to a desired output. [9]

In 1988, speaking in his capacity as government minister on the subject of the reform of engineering studies and creation of a computer engineering sector, he wrote:

> The teaching of systems analysis in particular must be present in this new sector, but it must also be part of the curricula of other civilian and industrial sectors due to its relevance in all sectors of application.[10]

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8 Lepschy, *L'automatica in Italia*, 1-2.

9 Ruberti, A. "Il futuro matematico." *Il Giorno*, 28 December 1982.

10 Ruberti, A. "Il ruolo dell'autonomia nella formazione degli ingegneri." Proceedings of International Talks organised by Cira, Bologna 8-9 September 1988.

Systems analysis grew less in importance, as i) it was not easy to draw up boundaries between a system and the universe it found itself in, ii) many control objectives of a system could not be drawn up clearly, iii) it was not easy to measure the performance of a system, iv) much of the theory developed in previous years was not useful in applications, v) scholars in various sectors did not view it as being productive, and vi) some generalisations did not produce results. An algorithm[11] for instance might be viewed as a system, but no significant result would result for the theory of algorithms. The general ideas of systems, interconnection of subsystems, predictions and controls remained valid. Ruberti often used these terms in his addresses. So much so that there is every reason to believe that in all his activities he would think things through using systems analysis:

> Looking at Antonio Ruberti's university and political career, we may easily conclude that he managed to metabolise the scientific and technical knowledge acquired by studying systems theory and use it to analyse the operational shortcomings of systemic processes of the institutions in which he worked, and to put forward and implement solutions to renew or restructure institutional frameworks.[12]
> His academic discipline, control theory […] is very much systemic in nature [and] indirectly offers a paradigm for the interpretation of complex social systems and a guide for action.[13]

Ruberti actually resorted to the terminology of his discipline as it was familiar to him, giving a scientific flavour to his ideas and making it more difficult for his opponents. He knew however – and he said so smiling – that his "systems approach" consisted mainly of lucidity and foresight.

In the 1980s his management and administrative commitments became ever more pressing, and although he wished to continue as an active researcher, he was rarely able to conduct scientific research, especially when he became government minister in 1987.

During his research activity Ruberti published about eighty articles, a fair number for the standards of the time, when researchers did not have today's means at their disposal and productivity was considerably lower than it is today.

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11 An algorithm is a procedure designed to solve a problem in a finite number of steps.

12 Ruberti, *Il capitale immateriale*, Preface by G. Corbellini.

13 *Ibidem*, afterword by A. Bonaccorsi, *L'eredità di Antonio Ruberti*.

Fig. 2.5. The internationalisation of research: Ruberti discusses with US control engineers at the foot of Mount Etna on the occasion of an Italo-American symposium on bilinear systems. (Author's photo)

If you look through his publications now[14], his overall production appears to be rich but not outstanding, centring on topics that were valid then but have become obsolete. There is no doubt that Ruberti was a good researcher, but in the scientific sphere his biggest contributions lay elsewhere: he was above all a pioneer and a creator. He was a pioneer because, thanks to him, the automatic control sector established itself as a trailblazer of engineering research in Rome and Italy, a creator as he created the school of automatic control in Rome, something he himself boasted of when he was relieved of his tenure. The dimension and validity of this school stand out simply by looking through the list of its members, here limited to the control engineers chosen by him or working by his side, with apologies to anyone unjustly left out: Armando Bellini, Paola Bertolazzi, Alessandro Bertuzzi, Carlo Bruni, Paolo d'Alessandro, Alessandro De Carli, Sergio De Julio, Gianni Di Pillo, Gennaro Figalli, Alberto Gandolfi, Alfredo Germani, Claudio Gori Giorgi, Osvaldo M. Grasselli, Luigi Grippo, Alberto Isidori, Giorgio Koch, Agostino La Bella, Michele La Cava, Francesco Lampariello, Tommaso Leo, Claudio Leporelli, Mario Lucertini, Salvatore Monaco, Mario Murgo,

[14] The collection can be consulted at the library of the DIS (now DIAG) of La Sapienza or at the Ruberti Archive, which is kept by his family.

Fernando Nicolò, Massimiliano Petternella, Giovanni Rinaldi, Serenella Salinari, Antonio Sassano, Giovanni Ulivi, Roberto Vitelli.

So as a pioneer of his discipline and creator of a school Ruberti is well deserving of the title of Master. Not only a master of science, but as we shall see a master of life.

2.3. Teaching

The reform of engineering studies in 1960 made it mandatory to include automatic control lectures in the electronic engineering degree course. In Rome this teaching post was first filled by appointment, before a competition was held for the post. The first one was won by Ruberti in 1964. He thus became the first full professor of automatic control in Italy. This new post represented a challenge not only on the research side but also for the teaching of the subject.

In the 1960s of course amateur video cameras did not exist, and no one would have dreamed of recording a university lecture with an 8 mm video camera. Some students would record the lecturer's voice on an audio cassette[15], but would then delete that lecture in order to reuse the cassette for the next lecture. So all that remains of Ruberti's activity as lecturer are the text books that he wrote at the time, and the memories of his students from those years.

The automatic control course was given in the fourth year of the electronic engineering and electrical engineering courses. In 1967 the subject was also included in the fourth year of the new nuclear engineering syllabus.

Many electrical engineering courses conducted the analysis of electrical networks and machinery with graphical methods based on vector diagrams[16]. Electronic engineering courses on the other hand were more oriented towards analytical calculus methods using Fourier and Laplace transforms[17]. This asked more of students, but it gave to the teaching of electronic engineering a more modern look and feel, and thus it was more attractive.

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15 Audio cassettes came onto the market in 1963, produced by Philips.

16 The vector method is a graphical method in which a value varying sinusoidally over time with a certain magnitude and a certain phase is represented by a vector that has that phase and, per module, that magnitude.

17 Fourier and Laplace transforms associate a time function with another complex variable function, offering some advantages for calculation.

Both degree courses were however polarised in terms of study under a sinusoidal condition: with electrical engineering the generation and distribution of power uses alternating current, while for electronic engineering there was a prevalence of radio technology, which at that time was based on periodic signals.

Ruberti had initially studied electrical engineering, but ten years of studies of automatic controls had allowed him to overcome the constraint of periodic signals. With control systems indeed the transient state plays a dominant role, and the steady state is not periodic. This could give to the automatic control course an even more modern and advanced appearance, and so attract the best students.

Thus the diving line between electronic and electrical engineering was drawn: electronic engineering dealt with weak currents and signals, while electrical engineering was the discipline of high intensity currents, or of power systems. One part of control systems referred to the signal, another acted on high power processes. Thus, the study of automatic controls required the ability to understand, analyse and design at the signal and power levels. The discipline was a natural bridge between two areas of engineering that had become separated not many years previously. This aspect could be presented to students as offering a more pervasive discipline, a sort of *'buy one get one free'*.

This pervasiveness of automatic controls could also be applied more generally. The methods of this discipline could be applied to processes in many areas of engineering: mechanical, thermal, chemical, aeronautical, aerospace, nuclear, environmental, and so on. But also to non-engineering sectors, such as biology, medicine, physics, mathematics. Ruberti like to use the term *all-pervasive* for automatic control, although he was well aware that the actual role of his discipline would be determined by the impact it had on the areas of technology and production.

In short, modernity and pervasiveness were the strengths of automatic control. Two qualities that could be used to build a role and a space for the new teaching position.

Ruberti did not let this opportunity go to waste, and in 1963 he wrote a text book, in conjunction with Antonio Lepschy, republished in 1967[18], in which the feeling of modernity jumped out on every page. Right from chapter one, the reader had the sensation of entering into a new land of knowledge, of going into the most advanced questions of

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18 Lepschy, A. and Ruberti, A. *Lezioni di controlli automatici*. Rome: Siderea, 1967.

industrial engineering, and even further. The text was not at all easy, it required the student to make an effort equal to the objective pursued. The examination would be hard to pass, but the result would be worth the hard work.

The pervasiveness of the discipline was duly highlighted, with references to the most varied of sectors and with well-chosen examples. Students felt they were in contact with a synthesis of many separate and distant areas of knowledge, where *from chaos there emerged order*[19]. The authors highlighted this aspect from page one.

> The feedback working diagram is not only used to perform certain control activities but is also an effective model for studying a wide range of physical, biological, psychological, economic and social phenomena. It follows that study methods developed for feedback control systems have a more general use…[20]

The text went on for over 600 pages, backed up by multidisciplinary examples, annexes and historical notes. Re-reading the text today, its content is naturally obsolete, but it is also simpler and in some ways more candid compared with how it seemed back then, as the level of teaching has evolved. At the time however it was challenging and innovative. Thus Ruberti promoted his discipline as being the most advanced and pervasive of the faculty. He was not of course the only one to sell his own wares, but he made a good job of it, as he had more than one string to his bow.

Ruberti attached to the course text book a book on components[21], chiefly sensors and transducers, and some lecture notes on analogue computers and nonlinear control systems treated with the describing function method. The course syllabus included all these topics, which were all studied in detail.

Generally speaking, the teaching material of the time testifies to Ruberti's striving for an innovative, challenging, varied and rich course. Above all there was the clear desire to make the student understand and internalise the illustrated methods, going beyond the simple committal to memory, even though the subject taught was not easy, and not too much time was devoted to facilitating its learning.

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19 Montale, E. *Mediterraneo*, in *Ossi di seppia*. Milan: Mondadori, 1926.

20 Lepschy, A. and Ruberti, A. *Lezioni di controlli automatici*, 52.

21 Lepschy, A. and Ruberti, A. *Componenti dei sistemi di controllo*. Rome: Siderea, 1963.

The general applicability of the methods used in automatic control was a topic of great interest to Ruberti. He was very receptive to the idea of generalising, and he would continuously move from a consideration of the single case or single problem to an overview of a whole category within which the same cases and problems could be placed. This aptitude to see both the specific and the general enabled him later on to make life difficult for his opponents, and at the same time to be a good researcher and organiser. In the scientific sphere he was attracted by more general methods, and he said on more than one occasion that he would like to have moved his institute to the faculty of sciences:

> […] I believe it is very instructive to reflect on relations between the faculties of engineering and those of the sciences. Nowadays many degree courses of the faculty of sciences are tending to include applicative and vocational subjects: examples are physics and semiconductors, mathematics and information technology, chemistry, geology, and the degree in information sciences. The distance between engineering faculties and those of the sciences is narrowing in some areas.[22]

It was perhaps from these beliefs that plans were made in the 1980s to move the seat of his department from the building next to San Pietro in Vincoli church in Rome to the 'university city'. These plans were not however carried through.

The 1967 text was subtitled *Theory of linear and steady-state systems*, which opened up towards a new discipline, called systems theory. As already mentioned, this was presented as the *corpus* of methods suitable for studying everything that could be represented with a mathematical model. There was a high degree of abstraction, mathematical rigour above that of a normal engineering course. Methods were borrowed from various branches of mathematics and analytical mechanics.

In 1973 Ruberti changed chair, from automatic control to systems theory, leaving the old course and beginning to teach the new one, included in year three of the electronic engineering degree course.

In following years, despite being busy as rector, he managed to write the lecture notes for the new course with Isidori[23]. The abstract and rigorous nature of the subject is declared in the preface to the text by the authors:

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22 Ruberti, A. *Il ruolo dell'autonomia nella formazione degli ingegneri*, 2.

23 Ruberti, A. and Isidori, A. *Teoria dei sistemi*. Turin: Boringhieri, 1979.

> […] A choice we have made here is to hold that central elements of systems theory are the analysis of mathematical representations of an abstract system and the study of their properties. The first of the above points includes the problems of equivalence of the various representations via which a system can be described (input-output, input-state-output, explicit, implicit, etc.), and of transformation from one to the other. The second point relates to the identification of significant properties in various applicative problems, on the question of which the definition of abstract system is introduced (problems of control, identification, stability, etc.) and to the drawing up of methods and criteria designed to evaluate as directly as possible whether or not these properties are attributes of an assigned system.[24]

Despite using a rather convoluted language, it is still amazing to consider how the course was set up for an Engineering faculty. The treatise was conducted along 'Bourbaki' lines[25], being broken down into definitions, theorems, corollaries, remarks. Every assertion is followed by a formal demonstration. The symbology is demanding for the reader.

Fig. 2.6. The lecture notes referred to in this paragraph. (Author's photo)

The text appears to be aimed more at the scientific community than to students, with the aim of proposing a systematic reference treatise of

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[24] *Ibidem*, 10.

[25] In the mid-20th century the group of mathematicians united under the collective name of Bourbaki sought to base mathematics on the notion of sets, in an axiomatic and very formalised way, without allowing room for intuition as expounded by Poincaré.

the discipline. The balanced mix of clarity and difficulty that was to be found in the text on automatic control appears to have been replaced here by a greater formalism, with an inevitable loss in teaching efficacy.

When he plans out a course and then writes a text, the lecturer has a sort of mental idea of the student he imagines he is relating to, albeit not always knowingly. There emerges from the teaching material studied that Ruberti had in mind an elitist vision, in that he sought to reward the best students and to encourage the others to catch up with the top students, or to lose them along the way if they did not manage to do so. This conclusion is confirmed by the way Ruberti gave lectures and held exams.

2.4. Lectures and exams

As already mentioned, we do not have evidence from the time about how Ruberti gave his lectures. Film clips and interviews from later periods do not help, as the man adapted his style according to the occasion and his experiences. So the only real source, subjective and dulled by time, is the memory of his old students. Any reader unwilling to accept such subjectivity might safely skip this paragraph.

The fate of the teacher is to remain etched *where the sponge cannot reach*[26] *in the memory of his students, who may happen to see and hear, at the most unexpected times, a sudden flash of their old master. Then nothing for years on end. This too is part of the richness of being human.*

Ruberti prepared his lectures with great care. The author is able to bring direct testimony of this fact, having been present during the process on more than one occasion during our time at the rector's office.

Preparation of a lecture did not consist merely of going through the contents of the lecture. It should be remembered that the subjects taught by Ruberti had a high content of mathematics and physics. The consecutio was often obligatory, as to skip a significant step would mean irreparably losing the thread, and losing the student too. So Ruberti would carefully go through each step, each formula, each reference. But that was not all. It was necessary to provide concrete and accessible support to intuition, in order to make the teaching more effective and remain soundly anchored to the field of engineering. It was necessary to show the lights and shadows, to highlight the value and relevance of results. He did all this with Mediterranean verve.

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[26] Montale, E. *Dora Markus*, in *Le occasioni*. Milan: Mondadori, 1939.

He practised his lecture by doing a sort of dress rehearsal in front of an imaginary audience. But this method, not uncommon in teaching at all levels, would have been too time-consuming for him. Thus he reduced the dry run to the most significantly emotive points, those in which he could transmit his vision, his perception of the subject or his satisfaction about the cognitive value of the illustrated result.

This method led him to a varied style of exposition. Routine sections were done with detachment, almost boredom, and above all very quickly. He would draw on the blackboard the diagram of a feedback system or the graphical representation of a step signal very quickly, and would often write down technical terms incompletely, ending with a wavy line representing the end of the word, which was obvious for him and so had to be obvious for his students. He would write Ny for example followed by a line for Nyquist. This made it quite difficult to take notes. Thanks to audio cassettes some students were able to record lectures, and those unable to do so could ask classmates for the transcripts.

On the other hand, Ruberti would use colourful terminology, jokes, catchy phrases and short pauses to communicate the value, importance, surprise or usefulness of a result that satisfied him. He went from one specific case or example to more general visions instantly and surprisingly, thus stimulating similar capabilities in his students. Thus did he express the deeply felt fascination of his discipline. He was certainly not an orator in the Aristotle mould. Rather he followed Cato's motto: *Rem tene, verba sequentur* (Keep to the subject, the words will follow). The effect was successful, and his students were touched. The prevailing opinion was that his lectures were useful, clear and stimulating, and they went home convinced they had understood most if not all of the lesson, only to discover later that they still had a lot to study. To non-students, those lectures also appeared to be an effective exercise in the art of persuasion, of which Ruberti was a master.

He certainly loved lecturing, he felt comfortable and was rapt by the fascination of the topics he was presenting. If as rector during the years of student protests he might be interrupted by a telephone call from his office, possibly because something serious had happened, he would appear annoyed and disappointed to have to stop the lecture.

Examinations were comprised of a written test, proposed and corrected by his assistants, followed by an oral test with the aid of the blackboard. There were usually three examination panels, each formed by two persons, while Ruberti walked around from one to the next,

asked the student a question and then moved on to the next panel. Then he would return, see what the student had written on the board, and sometimes intervene with additional questions and remarks. If he saw that the student was well prepared, his questions would almost be challenges. If the student was not well prepared however he would look bored, with a look of indifference and carelessness, almost like a braggart, as he would sometimes be seen as rector when dealing with persons who did not enjoy his intellectual esteem. When things were going badly, he would stop the examination at once, and invite the student to come back another time, otherwise he would discuss the mark to be given with the two panel members. The oral examination might last about an hour. He used to say that the first ten minutes would serve to generally assess the student, the remainder to convince him of the mark to be awarded.

He stopped giving examinations in 1976, when he became rector, and stopped lecturing altogether only in 1987, when he was appointed government minister. Still today many of his pupils remember those lectures with considerable pleasure.

To conclude, we can say that it was not Ruberti that chose automatic control as his area of expertise, but he proved very able to grasp the opportunities afforded by this sector. This attitude, very common in the academic world, where every professor exalts the importance of his subject, was in Ruberti's case founded on the depth of the analyses conducted and on his great ability to generalise. In following years he would put this quality to good use, causing those within his circle to observe that *anything taken in hand by Ruberti would grow in importance*.

3. The University

The chair of Automatic control in Rome, that Ruberti won in a competition in 1964, was part of the Institute of electrical engineering, within the historical Faculty of Engineering next to the church of San Pietro in Vincoli in the centre of Rome.

Members of the Institute included leading names such as Filippo Neri, dean of the Faculty, Arnaldo Maria Angelini, first CEO and then chairman of Enel, and Algeri Marino, a collaborator of Gugliemo Marconi and a general in Aeronautical Engineering. New arrival Ruberti was still young (not yet forty years old), without an important academic background and lecturer in a new discipline. Indeed he was not even given a suitable room, so he made do with a desk at the back of the computer room. Without complaint, in this precarious position he began to perform his teaching, scientific, organisational and relational activity. As this activity grew his logistical situation became untenable, and the Institute's management finally found him a more suitable arrangement.

He would love to recount this episode to his collaborators when they asked for more space, more resources or, emblematically, an air conditioning unit. The conclusion he drew was that resources had to be earned.

In those early years Ruberti enrolled some young graduates and added them to those working in the Fondazione Bordoni, with which he maintained relations. In this way he went about forming the first core of the school of automatic control, as mentioned in Chapter 2.

In the meantime in the Faculty's courtyard a building was going up, intended mainly for the new Institute of electronics. Ruberti suggested that a new institute be created and placed in the new building. His proposal was accepted, perhaps, he would say with tongue in cheek,

because electrical engineers wanted to see the back of him. Thus the Institute of automatic control was born, and Ruberti became its director. This was 1969.

3.1. The Institute of Automatic Control

For the first time Ruberti found himself in charge of his own organisation, a structure he himself wanted and that he could shape according to his wishes. At the time he had a dozen or so collaborators, working as assistants, graduate technicians and grant holders. New resources would soon be added to the personnel set-up.

Ruberti organised his collaborators into research groups, usually consisting of three or four persons, the most senior being the coordinator. Each group had its own research topic within the field of automatic control: systems theory, control theory, optimal control, identification, bioengineering, operational research, control of electrical machines. The make-up of groups and the relative research topic were decided directly by Ruberti, who then examined draft versions for publication, suggested improvements and finally recommended the destination (journal or congress) for the article for printing. In this capacity Ruberti had full powers, even though he was always happy to discuss his choices.

But his malleability was tested when he perceived the danger of stagnation and repetitiveness, things that he deemed fatal in research activity. The group looking into the control of electrical machines for example had achieved good results in the latter half of the 1960s, controlling the frequency of a lathe[1], but it stubbornly continued to make minor improvements to the equipment. For many months Ruberti had suggested in light tones that it was time to move on to a new research topic, but his suggestions fell on deaf ears. Finally he entered the laboratory, found the lathe controlling equipment in the centre of the room and ordered it to be removed that day. And he publicly explained why, stating that in research inertia meant death, that top level research is always cutting edge, that he could not allow the scientific suicide of persons for whom he was responsible. Following events would prove him right.

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1 The lathe is a machine tool driven by an electric motor, the speed of rotation being controlled by varying the frequency of the incoming current, hence the name *frequency control*.

Ruberti would leave home at 8 o'clock and get to work at about half past. He expected everyone to be present, and sometimes he would walk up and down the corridors to say hello and check attendance. He would return home for lunch at half past one or two o'clock, then return to work from 5 to 8 o'clock. When he stayed at home in the afternoon, he would check attendance by telephone, asking to speak to members of the Institute.

When selecting youngsters to do research work in years in which there was no doctorate course, Ruberti resorted to the Postgraduate course in engineering of control systems and automated computation that he himself had created. This course had a duration of one year, with eleven examinations, for which some annual scholarships were on offer, disbursed by CNR, and which could be renewed for a second year. Graduates attracted to university life had an interview directly with Ruberti, who examined their *curricula*, gauged their propensity to conduct research and, if everything was positive, proposed the students' enrolment on the postgraduate course and application for a grant. He ended the meeting with the phrase: *you will be able to see how you go with us, and us with you*. There were of course occasions when the sons and daughters of colleagues, or persons known to varying degrees, were presented to him. They might have been received more cordially, but basically the treatment was very similar for everyone.

The young scholarship winner was immediately plunged into research work, with the study of a standard text such as Zadeh and Desoer[2] for systems theory, Horowitz[3] for automatic control or Kantorovich[4] for functional analysis. After a couple of weeks newcomers would be assigned to a research group, which would give them some publications to read by way of an introduction to the group's activity. They would then take part in meetings and receive continuous stimuli to make a contribution in the way of ideas. Sometimes youngsters would be assigned a more complete bibliographic search. At that time of course there was no Internet, and articles were searched for in *Current Contents*, collections of *abstract*s available in the library, which were then

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[2] Zadeh, Lofti A. and Desoer, Charles A. *Linear system theory: the state space approach*, New York: R.E. Krieger Pub. Co., 1963.

[3] Horowitz, Isaac. *Synthesis of feedback systems*. New York and London: Academic Press, 1963.

[4] Kantorovich, Leonid V. and Akilov, Gleb P. *Functional analysis in normed spaces*. New York: Macmillan, 1964.

paper copies or on microfilm, and by means of bibliographic references of more recent articles, *picking them like cherries*. Having found some interesting titles, the text had to be photocopied from the journal or from congress proceedings present in the Institute's library or in the much better furnished library of the CNR. Any articles that could not be retrieved in this manner were requested by mail directly from the author, who would send them within one or two months. This went to form a collection of articles that each member kept in an ad hoc ring binder. The youngster conducting a bulky bibliographic search would be asked to write a summary of what he had found. This was published as an Institute report[5].

Ruberti encouraged the youngster to produce articles as quickly as possible. At least once a week he would go into the room and observe what the occupants were doing. He had an excellent memory, and if he found youngsters studying articles two or three times running, he would get them to do something productive, telling them to *stop being blotting paper!* He would call in the youngsters for a chat several times a year, and if their productivity was low or absent altogether, he would tell them calmly but firmly that perhaps research work was not the road for them.

The youngster's participation in the work of a research group usually resulted in the drafting of a first article under several authors' names. This endorsed the youngster's entry in the world of research. Ruberti would not infrequently enter a room holding a synthesis of the first publication, and congratulate the new author. Then there would be talk of renewing the scholarship or finding some other solution, a question always handled personally by Ruberti. He was well aware that university salaries were not high, and that a young engineer fresh out of university could enter the business world and earn more. But he used to say that the university *was a great thing, and was worth the sacrifice*. In universities at that time the idea was still going round that the university career was reserved for the rich.

Having completed the period of placement in the Institute's community, a process lasting one or two years, sometimes including a study period spent overseas, the youngster would be asked to do some

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[5] Ever since the Institute was created, Ruberti had created a collection directed by him of "Reports of the Institute of automatic control and control systems and automated computation study centre" which had an *early printing* function and was disseminated by mail to research centres operating in the sector.

teaching work. The first step was usually to be the member of an examination panel. This was followed by time spent giving explanations to students and, after a year, coordinating some exercises. Over three or four years the youngster would take up a teaching post at a secondary seat, such as l'Aquila, Ancona, Cagliari, Camerino, Florence or Cosenza. These posts were available as those university seats that did not have their own lecturers of automatic control requested the sending of an appointee. Ruberti, who was the leading figure in his field, handled these requests with great care, choosing the person he believed to be most suitable. He wanted to make sure he would make a good impression, and he gave the designated youngsters instructions, advising them not only on the course to be given but also on relations to maintain with the requesting seat. Anyone disappointing him would not be forgiven…

At the same time the youngster would be given one or two organisational tasks, such as preparing forms for study plans, planning library purchases, organising a conference, seeing to correspondence, taking part in committees and so on. Ruberti was soon able to gauge whether or not the youngster was suited to performing these tasks reliably and quickly, and thereafter he would involve only those who had given a good account of themselves, without this being advantageous or damaging for the youngster's future career. He would say that *new work is given only to those who already have a lot of it, if they do not it is because they are incapable*. Teaching and organisational commitments obviously limited the amount of time available for research, but Ruberti refused to let this fact justify a drop in scientific productivity, rather it had to be a stimulus to expend all his energies for the university. And when a competition was coming up, he would wander round the rooms, uttering the words: *now it's time to turn the screw*.

Ruberti would rarely reprimand staff, but if he did so it was only after a long period of observation. He would wait patiently, occasionally showing signs of dissatisfaction and accepting the excuses proffered. Finally, when the work not done or done badly came in such quantities that it could no longer be denied, he would call for the guilty party and give him or her a real roasting. There is no doubt that everyone was afraid of this happening. With rare exceptions, the results were good, and the Institute was an efficient and productive work environment.

3.2. The CNR centre and computer science

In 1969 the CSSCCA, the Centre for Automatic Control Systems and Computing (which hereafter we shall simply call the Centre) was created within the Institute of Automatic Control, Ruberti becoming its director. We should note here that CNR had three types of research structure: i) centres, having a limited duration and hosted in another structure, such as a university; ii) laboratories, again having a limited duration but with their own seat, and iii) institutes, set up without time limits and having their own seats. A centre hosted by a university seat had its own personnel and funding.

The creation of a CNR centre within a university structure was not unusual. In 1976 for instance Giorgio Tecce told the following anecdote[6]. In 1970, having become full professor in Rome, he went to see Vincenzo Caglioti[7], CNR president, whom he knew well. After the usual small talk, Caglioti looked questioningly and in silence at Tecce, who did not know what to think, until he was asked: "Well, what do you want?" Tecce did not know what to say. Caglioti said to him: "Do you want a centre?" The result was the creation of the Nucleic acids study centre, which was later merged into the Institute of molecular biology and pathology.

This story shows that CNR management was in favour of the creation of centres. And Ruberti did not let this opportunity go to waste. The Centre had staff positions of researcher, technician and administrative staff, and funding that allowed considerable resources for laboratories, missions and the purchase of books. It also facilitated access to CNR funds, and made it possible to raise the salary of university personnel through the assignment of a research position. Most of the publications that came out of the School of automatic control bore the emblems of both affiliations, the University and CNR.

At that time the CNR researcher did not have a real career path. This would be created only twenty years later, by Ruberti himself in his capacity as government minister. The CNR grade structure was viewed as being below that of the university. However, the entire CNR was controlled and managed by university professors, who often di-

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6 Anecdote recounted in the presence of Ruberti and the author.

7 Caglioti was professor of Chemistry, national member of the Accademia dei Lincei and CNR president from 1965 to 1972.

minished its role to that of being simply a reservoir of funds and posts. CNR research funds were in particular managed by national committees, including that of engineering. Ruberti applied to become a member of this committee, but was unsuccessful.

The Centre stood out for its scientific pedigree: productivity was high, and of good quality, with Ruberti working to drive efforts forward and personnel responding well to his instructions.

In 1974 the CNR's LISAV (Laboratory of systems applied to flight) was closed, and some of its members asked to be moved to the Centre. One of these was Lucio Bianco[8], future CNR president. The choice made by these persons confirms the scientific prestige that the Centre enjoyed in those years. Moreover, the entry of personnel and laboratory equipment from LISAV made a significant contribution to the Centre. The Institute of Automatic Control and the Centre now had around forty members, and the original seat was no longer adequate. This lack of space was remedied by renting an apartment, first in Piazza San Pietro in Vincoli, then in Via Giambullari and finally in Via Buonarroti.

The Centre was also the instrument with which Ruberti first came into contact with computer science. In the initial phase of vehement growth, automatic control and computer science were often mixed up. Some subjects, such as that of analogue computers, on which Ruberti had worked, were placed first in one and then in the other discipline. Relations between the two were unequal, as automatic control had a greater academic weight, and difficult, because in the 1960s engineering had not shown itself to be very open to the questions of computer science. In particular Alessandro Faedo[9], the chancellor of Pisa University, had attempted to create a degree in computer science with the contribution of engineers. They had dropped the idea however, arguing that computers were only applications of electronics. In 1969 Faedo, not to be denied, had created a degree in Information Sciences at Pisa, based not in the Faculty of Engineering but in that of Sciences. So relations between computer and automatic control engineers were not ideal. The former feared the intrusiveness and lack of theoretical interest of the latter.

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8 Lucio Bianco was professor of Operations research at the Second university of Rome and CNR president from 1997 to 2003.

9 Alessandro Faedo was professor of Mathematical analysis at the Faculty of Engineering of Pisa, rector of the University of Pisa and CNR President from 1972 to 1976.

The birth of the degree in Information Sciences at Pisa, followed by similar degree courses at Turin, Bari and Salerno, was a source of alarm for Ruberti, who rightly saw it as a missed opportunity for engineering. So he decided to make up lost ground, and in October 1971 he spoke at the congress of the AICA (Italian Automated Computing Association), forcefully arguing in favour of the unification of two disciplines. He was appreciated for his managerial capabilities, but perhaps for this reason he was feared by information specialists, who did not agree to his proposals, fearing the greater academic weight of automatic control engineers and the instrumental and applicative vision of their discipline[10].

Fig. 3.1. *CNR mathematicians and computer engineers at the CNR in 1955. Second from the left is Paolo Ercoli. (Public domain)*

Ruberti returned disappointed but determined to achieve at least at a local level what he had not been able to achieve nationally. At the time the electronic computers course, held in the Institute of automatic controls, was given by Paolo Ercoli, a researcher arriving at the Centre from the IAC, the CNR Institute for computation applications. Ercoli's collaborators in the Centre included Giuseppe Iazeolla, later moving to Pisa in 1973, and Giovanna Ballaben, who left the university to join Selenia, again in 1973.

With Ercoli left on his own, Ruberti asked him to convince Giorgio Ausiello, IAC researcher studying the complexity of algorithms,

10 Memories of Giorgio Ausiello told to the author.

to move to the Centre in January 1974. Ausiello helped to form a computer science school both in the Centre and in the Institute, where he became full professor in 1980 alongside Giacomo Cioffi, specialising in architectures, joined in 1982 by Luigia Carlucci Aiello, working in the field of artificial intelligence. Ruberti left the computer scientists free to choose their own research topics, including very theoretical strands.

Nine years after his failed attempt at the AICA congress, in 1979 Ruberti saw an embryo of his plans become reality with the creation at CNR of the GNASII, National automatic control, systems analysis and computer engineering group and its parallel informal group called GRIS, Group of computer science and systems analysis researchers.

In 1981, as part of experimentation initiatives provided for by Decree 382 of 1980, a proposal was put forward for the creation in Rome of a department in which the Institute of automatic control and the group of computer engineers from the sciences would be merged. At first the latter agreed to the initiative, but then decided to remain independent. This marked another failure in Ruberti's attempts to unite various related disciplines. The new DIS, Department of computer science and systems analysis, saw the participation of researchers from the areas of automatic control and computer engineering, whereas computer engineers from the sciences did not join. In those years moreover the roles had been reversed, as computer science had become more important than automatic control. Ruberti himself had to recognise this fact when, in 1988, as government minister, he accepted that the new degree would be in Computer engineering and not, as he would have liked, in Systems engineering.

In 1980, after ten years of activity, the Centre became IASI, Institute of systems analysis and computer science of the CNR, a permanent research structure based in Viale Manzoni in Rome. Ruberti was its director for a short time, then he passed on the baton to Lucio Bianco. Since 2002 IASI bears the name of Antonio Ruberti, as does the DIS.

3.3. Relations with the Faculty

In the mid-1960s the dean of the Faculty of engineering of Rome was Gino Parolini[11], professor of technical physics and an established professional in the sphere of air conditioning systems. Parolini represented the

[11] Gino Parolini was Faculty dean from January 1966 to December 1968.

conservative part of the Faculty, fully believing that private practice was the most important activity of the engineering professor, and that research was a marginal activity, useful only for furthering one's academic career.

In 1962 the Faculty's two-year introductory course had become detached from the Faculty of sciences and formed a new section, using lecturers from the sphere of engineering. There was originally a division between the vocational three-year course and the two-year course leaning more towards the area of research. This difference would remain in the Faculty for decades to come.

Ruberti found himself in the middle ground, being an engineer with professional experience but very much convinced of the primacy of research. He was a good researcher, engaged in an area that was innovative but little understood, and deemed to be marginal by many of his colleagues. He was the newcomer, and so would act as secretary for the Faculty's governing board. Academic rules meant that newcomers were not allowed to take the floor for the first three years. He performed his role as board secretary with due care, taking advantage of his position to gain easier access to information. Here his belief that the Faculty was not being well governed would grow.

The student movement of 1968 arrived at Engineering with a certain delay, due to the Faculty seat being isolated from the main campus, or 'university city', in Rome and to the Faculty's conservative traditions. For some months students wavered between left and right, before taking a firm stance in favour of innovation, organising assemblies, sit-ins and protests. The general consensus of students was that the university formed loyal subjects without the ability to think for themselves, that for less privileged social classes studies were not an opportunity to rise but a mechanism ensuring their continued marginalisation, and that the whole social structure was designed to perpetuate the domination of the ruling classes.

Ruberti was struck by these ideas, without necessarily agreeing with them. He began to come up with his own ideas, which led him to draft some guidelines for future action. This was a crucial time in his life, as he said on several occasions:

> "1968 was a turning point in my life. Until that time, even though I had more general personal interests, I had concentrated on research. The 1968 movement had the effect of encouraging me to act on the political front. That was the turning point. I remember that I took the side of the

> students. I recall the Faculty being occupied, and students reading *Lettera a una professoressa*[12] […]. I was stirred, and made to reflect. I realised it was not possible to remain unaffected. I agreed with the desire for non-separation, the desire to overcome this mentality. I agreed with the anti-authoritarian protest, against the authoritarianism that was rife at that time in academic circles, with the assistant's subordination to the professor, to an authority which in several cases concealed a limited and under-informed preparation".[13]

Ruberti came out of that period with the determination to work to improve the running of the public sector. It is difficult to say how many things were going through his head at that time, but perhaps one lies at the core of all others: that the efficiency of the public sector is fundamental for freeing the less advantaged members of society, since where the public sector does not work well private enterprise comes in to perpetuate inequality among citizens. So, prefiguring his role as public servant, Ruberti was embodying the provisions of article 3 of the Constitution[14].

In 1968 Giuseppe Vaccaro[15] took over from Gino Parolini as dean. The two saw things in a basically similar way, helped by the fact – an academic tradition – that Vaccaro's son worked in Parolini's Institute. In particular, the two were in agreement about plans, initially proposed by Filippo Neri, to move the Faculty to the Centocelle district of Rome, creating a polytechnic.

The student movement rejected the initiative however, arguing that this would have completely isolated engineering from the rest of the university. Ruberti was on the side of the students on this occasion, believing that this project, going against the spirit and the very name of *Universitas*, was an attempt to ghettoise the Faculty and to make it a reactionary oasis isolated from the winds of change sweeping through society. From that time his more conservative colleagues began to speak of him as *Ruberti the communist*.

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12 *Lettera a una professoressa* (1967) was written by some of the students of the "scuola di Barbiana", a small school near Florence focused on the needs of disadvantaged children, founded in the 1950s by don Lorenzo Milani. (Translator's Note)

13 Ruberti, A. *Il capitale immateriale*, 49.

14 Const. art. 3 p. 2: "It is the duty of the Republic to remove those obstacles of an economic and social nature which in fact limit the freedom and equality of citizens, impede the full development of the human person and the effective participation of all workers in the political, economic and social organization of the country."

15 Giuseppe Vaccaro was Faculty dean from December 1968 to October 1973 and rector of the University from November 1973 to December 1976.

But now he had very clear ideas, strongly believing in his vision, and did not miss an opportunity to carry forward his ideas. He cooperated fully and efficiently with the running of the Faculty, accepting and performing the most menial of tasks as well as possible. During Christmas in 1972 for example he managed to prepare in time the study plans that had been handed in late by the Faculty, thus frustrating fresh attempts to put off matters. He offset the lack of teaching coordination by promoting the creation ahead of its time of a degree course Board in which electronic, automatic control and computer engineers could meet to discuss matters. Unlike what was happening in other institutes of the Faculty, in his he managed to maintain peaceful relations with staff, indeed the student movement called the Institute of automatic control a happy little island. In many cases he agreed to public meetings with students, often managing to bring them onto the path of reasonableness.

In 1973 Antonio Ruberti had gained the esteem of a certain number of colleagues who, even though they did not agree in full with the ideas of the left, were persuaded by this man's commitment to the institution, and considered him the best equipped to tackle the violent faction of the movement, which interrupted lectures with wildcat actions, boycotted examinations and publicly 'tried' lecturers, guilty of publishing over-expensive texts or conducting examinations too rigidly. Other colleagues continued to talk about *Ruberti the communist*, as they sought a generic return to the good old days. In 1973, when Giuseppe Vaccaro became rector of the university, the post of dean of the Faculty became vacant.

3.4. Dean

A group of progressive colleagues put forward Ruberti's name to fill the post of dean. He accepted and presented a manifesto based on the re-launching of the Faculty. The conservative bloc backed Paolo Piga, professor of mining art. Lecturing staff were split, and about ten votes were needed to elect the new dean. Piga obtained more votes in the first polls, then the needle shifted in favour of Ruberti, who was elected.

In the three years in which he was dean, Ruberti acted on three fronts: to overcome the division created with his election, to re-launch the Faculty, and to successfully manage his role in the academic Senate.

On the first point, it should be said that Ruberti had never attacked the person up against him, limiting the confrontation to the comparing of ideas, with the utmost respect for his opponent. In a short space of

time he had managed to pull most of the lecturing staff onto his side, except for a handful of die-hards, whose influence gradually subsided. One of his biggest successes was to dismantle the plans for a polytechnic at Centocelle, and to befriend Piga, who became a big ally in the Faculty and then at the rector's office.

The first problem to sort out in re-launching the Faculty was the shortage of available space. The Centocelle project had led to the postponement of building work at the main seat, while the number of students, thanks in part to the liberalisation of university access in 1969, had grown in a few years from 4,000 to over 10,000. Furthermore, the poorly serviced facilities were quickly going to seed. The seat of San Pietro in Vincoli was also of historic relevance, being located partly in the old convent containing the splendid Sangallo-designed cloister and partly built in the early 20th century as the *Royal school of applied engineering in Rome*.

Ruberti proposed the radical choice of restructuring the seat, creating extra levels, dividing up classrooms and moving offices to fully exploit available volumes, naturally safeguarding the oldest part of the convent and cloister. He managed to come up with the necessary funding, received help from Enrico Mandolesi, professor of technical architecture, and in one year of works managed to double the amount of available space. The Faculty lost a bit of its quaint and lived-in atmosphere. The marble busts, plaques and Oberdan memorial appeared to clash somewhat with the new classrooms, having low ceilings and blue beams, but the space crisis had finally been resolved.

Fig. 3.2. The historic seat of the Faculty of Engineering in Rome. (Photo: dearbarbie Flickr, Creative commons licence)

Ruberti did not stop there, and attacked the similar problem of space for the introductory two-year course. As mentioned previously, the course had been created in 1962, and had temporary seats dotted here and there: physics in a prefabricated building in the university city, mathematics and chemistry in other prefabricated buildings in Via Scarpa, prefabricated classrooms distributed in different parts of the university city and outside. There were seven locations in all. Ruberti would talk about the *seven sins* of the two-year course. A solution had been proposed in Via Scarpa, where the military were to have freed up the area called Abc, the name of the structure occupying the space. Ruberti did all in his power to find a solution to the 'seven sins' problem, but received only promises and deferments.

The second problem affecting the Faculty was the student protest movement, which at the time was headed by exponents of *Lotta comunista*. This group had a powerful role in the Faculty of Engineering of Genoa, and had the ability to act effectively in an area such as engineering, rendered difficult by the amount of studies involved and the social origin of students. There were frequent assemblies, sit-ins, actions to disturb lectures and exams, public trials of lecturers and threats. The neofascist group based in the neighbouring Colle Oppio would also make raids, usually in the evening, causing damage and the risk of clashes.

The new dean presented himself as a man of the left, receptive to students' appeals, however this did not automatically guarantee peace, since the political goals of Lotta comunista went beyond the usual claims. Ruberti drew up a strategy based on communication and containment, and on two principles: complete readiness to seek dialogue and agree to requests when they were reasonable, but firmness in respecting rights and democratic processes.

The debate/discussion between Ruberti and leaders of the protest movement was often sticky for the latter. Not only did Ruberti uphold many of their analyses regarding social injustice, the conformism of the university, the trodden-on rights of the less privileged classes, the perpetuation of power, and so on, he would often be the first to mention and examine them. At the same time he showed that the anti-democratic path of violence was doomed to failure, and suggested realistic alternatives for the achievement of their goals. In short, he was further down the road. On some occasions, but not always, he managed to prevent bloc initiatives in the Faculty. This strategy of talk and firmness pursued in those years proved to be an invaluable experience for the years spent as rector.

In the academic Senate, at the time formed by the rector, deans of faculties or schools and administrative director, Ruberti was known for his clarity of thought and service to the institution. He fought for the transparency and objectiveness of criteria for the allocation of resources, earning the esteem of some colleagues who were some distance from his political beliefs, such as the dean of the law faculty, Rosario Nicolò, or of medicine, Aldo Cimmino. He argued that the University had a short-sighted management, centring on trivial short-term problems, and did not have a global vision in keeping with its historical role and with the national dimension of the University of Rome. He fought for the establishment of a second university to lighten the student load, which in Rome was close to 150,000 students. He did not get involved in petty power games, giving the image of a dean who could see beyond the interests of his faculty. The University was looking more and more ramshackle, and many of his colleagues believed it was necessary to change things completely. Ruberti appeared to be, not only to lecturers from the left but also to some conservatives who cared about the fate of the institution, the person who had been able to revamp his faculty and who had ideas, credibility and the ability to re-launch the University. In 1976 Vaccaro's term of office came to an end, and Antonio Ruberti was asked to stand for the post of rector.

3.5. Elected as rector

Ruberti accepted the candidature and, just as he had done at the Faculty of engineering, he proposed a programme of vast change for the University which, in his words, *caused a scandal*. His opponents were the outgoing rector Vaccaro and Alberto Fidanza of the Faculty of pharmacy, who was head of Uspur, the union of university professor and lecturers.

In the University Ruberti's candidature was backed, among others, by Rosario Nicolò[16], dean of the Faculty of Law, Giorgio Tecce[17], dean of Sciences, and Aldo Cimmino[18], dean of Medicine. These Faculties were not completely behind their respective deans, but formed internal groups of lecturers represented by leaders with whom it was necessary to talk, one by one, to try and get them onto one's side. Not even Engineering

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16 Nicolò was dean of the Faculty of Law from 1967 to 1980.

17 Tecce was dean of the Faculty of sciences from 1976 to 1988 and rector of the University from July 1988 to October 1997.

18 Cimmino was the *historical* dean of the Faculty of Medicine for a twenty year period.

was all behind Ruberti's candidature, since the old conservative bloc still had their own candidates, such as Daniele Sette and Gino Parolini.

Among academic staff there were also the hardliners, i.e. the most politicised elements, who followed and to some extent had a say in the direction of their respective parties. These were offset by another section that viewed with suspicion the interference of political parties in the University, and had come out in favour of university independence. Ruberti had talks with Luigi Petroselli, regional representative of the PCI (Italian Communist Party), who did not guarantee any backing as far as the election was concerned, but promised to support him should he win with his own forces.

Ruberti was well supported in the faculties of Letters and Architecture, but the most complex relationship was with Medicine. This became clear right from the first rounds of voting, when it was obvious that some block votes from Medicine were not being cast. Talks with Cimmino, held in Neapolitan dialect, resulted in ever increasing requests from groups in Medicine, who asked for pledges in terms of posts, resources and funding, tied up with the Faculty's three-fold role, in the areas of teaching, research and healthcare. The most important problem was the funding, in excess of over 50 billion lire, for the building plan that Vaccaro had obtained from the government. It was agreed that Silvio Messinetti of surgical semiology would be vice-rector, and would follow building work.

Fig. 3.3. Antonio Ruberti with Alberto Asor Rosa at the time of voting. Asor Rosa was an exponent of the Faculty of Letters, the majority of which was behind Ruberti in the chancellor election. (Author's photo)

Voting was held in lecture room I in Law. Ruberti waited in Tecce's study for the results of voting, which arrived directly via walky-talky. Some supporters were also present, including Tecce himself. The electorate was made up of several hundred colleagues, and it was not hard to reconstruct the voting trends of the various groups, starting with the list of voters, results, missing votes, spoiled ballot papers and number of non-voters. This work required the cooperation of supporters from various faculties, who would then contact colleagues to get them on their side or urge them to vote.

In the first rounds of voting it appeared clear that voters were divided into three parts, and no one candidate was close to obtaining a majority. The newspapers made the struggle very public, and among lecturing staff there was a sense of unease about this show of discord. The pressure to present a new unifying candidature grew, and the names of illustrious figures deemed to be *super partes* were bandied about. But Ruberti was now the candidate receiving the most votes, and with every round of voting the numbers rose slightly. This gave him the motivation and the determination to carry on with his campaign, even though he was at his wit's end with the constant negotiations needed to obtain ever smaller block votes. Finally, at the tenth time of asking, he went above the *quorum* needed, and was elected rector for the period 1973-1976. When the news came through via the two-way radio, his eyes misted up for a moment, more in fear than anything. Tecce's study was filled with a throng of supporters, then journalists. Finally he got a telephone call from the head of administration, who made a car available for him. But Ruberti, who was with his wife on that day, was already thinking about the job that awaited him.

In those days both his supporters and detractors wondered what pacts he had had to make in order to be elected. It was a valid question, since the rector, unlike the Faculty dean or institute director, handles enormous resources. This is especially true for the head of Italy's biggest university. And the long process leading to his election had been marked by extenuating negotiations. As we shall see below, Ruberti's declarations and above all his tenure enable us to believe that he had agreed only to the demands that were not at odds with the collective interest.

So Ruberti left the Faculty of Engineering after having been in charge for just three years. But he had left such a mark that the general consensus was for a continuation of the path he had embarked upon. The new dean was Mario Murgo[19], one of his closest collaborators.

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[19] Mario Murgo was Faculty dean from March 1977 to October 1985.

3.6. The 1977 movement

Ruberti took up the post of rector in December 1976. In those years Italian universities were right in the middle of a situation that was highly charged and difficult to handle, the result of political wavering in response to the 1968 student movement.

The political classes had responded to the movement's demands with just two innovations.

The first was the liberalisation of university access. Students holding any type of school-leaving certificate were allowed to enrol at any faculty, while previously this had been possible only for students coming from the *liceo classico* and, for a few faculties, from the *liceo scientifico*. In ten years the number of enrolled students had risen three-fold, without a similar increase in available spaces, resources and teaching staff. There had also arisen some serious study problems, as students were coming to university from very different school backgrounds, in some cases little suited to university studies. Teaching freedom meant that this situation would be tackled in an uncoordinated manner: some lecturers simplified and adapted their courses to the new user target, running the risk of lowering the academic level, while others continued to give the same courses, or even made them tougher, thus marginalising the new classes of school-leavers and increasing the number of out-of-course youngsters and drop-outs.

The second innovation introduced by the legislator, study plans, was unable to combat the failure of many students, who had the impression that teaching staff were authoritarian and uninterested.

Two new faculties, Psychology and Sociology, created in Rome in the late-1960s, were very attractive to students of the 1968 generation, without there being adequate demand for them in the labour market. The two new faculties quickly had thousands of enrolled students, and facilities were very much ill-suited to such high demand.

In response to this situation the political classes were unable to introduce a reform of the university. Parliamentary bills had all fallen by the wayside, and in parliament the word went around that when a minister proposed a reform of his own he was close to losing his government post. The situation was handled using so-called urgent measures, creating the figures of temporary researchers and contract workers intended in theory to work for two or four years, in a country in which nothing is more lasting than what is professed to be transient.

The delicate university balances were upset by having to assign these positions quickly without being able to select personnel through public competitions, which may themselves be criticised but at least were completed in the necessary time frames.

The wave of new students rolled over Italian universities as from 1970. In 1974-75 the first graduates of this new period started leaving university, and they found a country laid low by the economic crisis of 1973, without the jobs needed to occupy all university leavers. Another couple of years was needed to make most students aware of their likely future among the unemployed, until in 1977 the lethal mix of disappointment, frustration, dissatisfaction and perception of the inadequacy of the academic world exploded in violent forms.

Fig. 3.4. University of Rome, 1977. Entrance to the assembly hall during the period of occupation. Note the words *we have to get rid of Ruberti* with the star of the Red Brigades, a clear threat. (Author's photo)

To gain an understanding of the origin and unfolding of events happening in 1977 one should be aware of the movements in place in those years. The groups formed in 1968 gradually disbanded in the 1970s. In 1973 *Potere operaio* closed its operations, and in 1976 *Lotta continua* was no more. Many former activists had come together in a new group called *Autonomia operaia*, who took up the workerist thought re-elaborated by a number of intellectuals, including Toni Negri. *Autonomia operaia* had its own media, chiefly the journals *Controinformazione*, *Rosso*, *Il male* and, as from 1976, the year in which the Constitutional

Fig. 3.5. University of Rome, 1977. Posters of protests in the Faculty of Medicine. (Author's photo)

Court put an end to the radio and television monopoly, some independent radio stations, which in Rome included *Onda rossa*, and which began broadcasts in May 1977.

In the meantime, the biggest of the subversive groups, the *Brigate rosse*, was moving towards more violent actions. In January 1976 Renato Curcio, its historic leader, was again arrested after his violent escape from Casale Monferrato gaol. His wife Margherita Cagol had been killed a few months earlier in an armed conflict, so the leadership had rested with Mario Moretti, who had launched an *attack on the heart of the State*, and had founded the Rome column. This unit was bolstered by the arrival of Prospero Gallinari, who had escaped from Treviso gaol, and some activists from *Potere operaio*. In February 1977 the first blow came with the wounding of Valerio Traversi, a civil servant in the Ministry of Justice.

An explosive mix was in the air: the university and the general discontent therein was a potential pool of supporters for the *autonomia* and *red brigades* organisations, while the police, according to Ruberti, believed that "if the protesters remained inside the university city they would be more manageable"[20]. Rome university was about to become a battlefield as well as a recruitment zone. Ruberti found himself having to tackle this situation early in his rectorship, and he provided a direct testimony:

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[20] Ruberti, A. *Il capitale immateriale*, 53.

> "On 2 February 1977 there was a foray, with injuries, in the University. They were the hardest two weeks of my life. The left wing rector was reluctant to call in the police. I had been elected by the left to manage the university in a democratic manner, founded on tolerance and respect for different positions. Calling in the police would have meant neglecting the expectations that had been raised. The situation was becoming more complicated. On 17 February Luciano Lama attempted to intervene, in his capacity as trade unionist, in order to convince occupiers that the university should be a place for debate and not violence. The result was that the *autonomi* chased Lama out of the university. […] It was a loss for the left. The University was occupied for a fortnight, and then closed. 1977 was a horrible year. I had to regain control of the University and make it workable".[21]

The episode in question can be seen on *Youtube*: Lama was in piazzale della Minerva, in the centre of the university city, speaking from a van equipped for the meeting, surrounded and protected by security agents from the trade union, when a column of *autonomi* armed with metal bars coming from the occupied Faculty of Letters managed to cut through the crowd, overwhelm security and drive off Lama and his escort, before destroying the meeting equipment. The television news opened with this story and was the cause of contrasting emotions: concern, but also a sense of revenge, giving new energy to protesters.

On 11 March 1977 in Bologna a student protest at the university became violent, and activist Pier Francesco Lorusso was killed by a carabiniere. This episode caused a wave of protests, culminating in a national protest the following day in Rome, where there were attacks, shots fired and guerrilla actions. *Autonomia operaia* took charge of the protests, encouraging sit-ins at universities and responding to crackdowns with molotov cocktails, stone-throwing and even gun shooting. The slogan *P38 for the riot police* and the gesture of three raised fingers in the form of a gun alluded to the Walther P38 semi-automatic pistol used by the partisans.

The situation was descending into a never-ending circle: manifestations were accompanied by acts of violence, destruction, fires. The police responded with violence, charging crowds, using tear gas, shooting firearms. *Autonomia* reacted with fresh protests, fresh violence, more shooting. *Radio Onda rossa* acted as a guide for protesters, at a

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[21] *Ibidem*, pp. 52-53.

time when mobile phones did not yet exist, reporting police movements and giving out instructions from the leaders of *Autonomia operaia*. The city was the scene of clashes between *autonomi* and the police, culminating in the shoot-out of 21 April 1977, when in addition to many woundings police officer Settimio Passamonti was killed. Every Saturday there were fresh skirmishes, and citizens stayed off the streets. Home secretary Francesco Cossiga had forbidden demonstrations. On 12 May this order was disobeyed, and school student Giorgiana Masi was killed.

Fig. 3.6. University of Rome, 17 February 1977. Clashes leading to the banishment of Luciano Lama from Rome University. In the circle is Bruno Seghetti, one of the brigade members responsible for Moro's capture. (Public domain)

On 1 July 1977 Ruberti, escorted by agents, was present at Engineering when a patrol of the Carabinieri recognised, in Piazza di San Pietro in Vincoli, three members of extreme left group *Nuclei armati proletari*, wanted for the killing of a police officer. There followed an armed conflict, resulting in the killing of NAP member Antonio Lo Muscio. Two women who were with him were captured. The police believed that the three were planning an aggression against the rector, and from then on security became tighter and more invasive. Orders were given not to stop for any reason when travelling around the city.

In those months Ruberti was under great pressure, he was living a stifled life, but remained determined not to give in. The only time his wife told him that she and their four children wondered if he would come

Fig. 3.7. University of Rome, 1977. Protest poster. Note the combination: Almirante, Fanfani, Pope Paul VI, Berlinguer. (Author's photo)

home alive in the evening, he replied: "If everyone reasoned like that, where would Italy end up?" Luisa did not mention this doubt again.

Working with patience and tenacity, Ruberti drew up a code of conduct for the University, based on the principles that he had tried out successfully when he was Faculty dean: readiness to seek dialogue, mutual respect and rejection of violence. His clear thinking and experience enabled him to talk to the leaders of *autonomia*, often managing to demonstrate to them the sterility and dangers of violence, and suggest democratic ways of furthering their claims.

His collaborators were amazed by the energy and the stamina he displayed at that time. Emblematic was the question of relations with trade unions, whose representatives were accustomed to dragging rectors into very long meetings until they got what they wanted through fatigue. Right from the first meeting Ruberti overturned the strategy, remaining extremely lucid until representatives had to give in due to exhaustion.

Throughout 1977 Ruberti carried forward his strategy, gradually getting the University back to work. Slowly the impetus of the protests died down, and students, tired and disappointed, preferred to get back to their studies. Ruberti perceived this change of climate, and took advantage of the summer break to clean up the Faculty of Letters and Piazza della Minerva, so as to give a visible sign of returning normality.

Fig. 3.8. Rome University, 1977. Protest posters and writings. The banner in the centre reads: "The chief weakness of democratic morons old and new is not ignorance or double-dealing, but a total inability to use their brain". (Author's photo)

In September of that year the Movement organised in Bologna a conference against crack-downs. This was basically a failure for *Autonomia operaia*, which began to break up. Manifestations grew few and far between, and the university got back to normal.

The action of the *Brigate rosse* intensified however. On 21 June 1977 they injured the dean of Economics, Remo Cacciafesta, and on 16 March 1978 they kidnapped Aldo Moro and killed his escort. Moro worked at the University of Rome, at Political Sciences[22], and even though he was kidnapped for his political rather than academic position, tension again rose in the University. Some groups of students were fascinated by the effectiveness of the blitz perpetrated by the brigades, and wrote on the walls *10, 100, 1000 Moro*s. Others were horrified by the murder of Moro's men, and the media lingered for days on their massacred bodies. Attempts to lift students on the wave of military success enjoyed by the brigades failed however. A precarious state of normality persisted in the University, again horrified but not subverted by the killing of Vittorio Bachelet on 12 February 1980[23] at the Faculty of Political Sciences or by that of Ezio Tarantelli at Economics on 27 May 1985[24].

22 Newsletter of the University of Rome, I-2, May 1979.

23 Newsletter of the University of Rome, II-2, March 1980.

24 Newsletter of the University of Rome, VII-4, July 1985.

Ruberti's first year as rector had been a fearful experience, but one that would stand him in good stead. He had been in constant touch with political forces. Every week he would meet Francesco Cossiga, then Home Secretary, and he had been supported by Enrico Berlinguer's PCI.

Fig. 3.9. Ruberti at the Conference on the school and university organised by the PCI in November 1977. The first on his right is Enrico Berlinguer. In 1977 the PCI's support of Ruberti's action was absolute. (Author's photo)

Egged on by the continuous emergencies, he had gained knowledge of the university, of politics, of the forces engaged and of human impulses, which enabled him to see events clearly for what they were, as documented in the report to the academic world in January 1978.

The report gives an analysis of Italy's university system and of Rome's universities in particular. Ruberti listed as major phenomena: i) the emergence of the university for the masses, tied up with demands for the social advancement of the lower classes; ii) the consequent impetus to guarantee the right to study; iii) the excess supply of graduates in the economic system; iv) the productive set-up of the country, having a low degree of specialisation, and thus with little interest in raising the quality of training. In short, he argued, economic forces were not interested in preventing the decline of the educational system as the number of students rose. Thus, with the training process as a means for social advancement nullified, this goal:

> "is re-assigned to differentiation mechanisms based on socio-cultural conditions (cultural inheritance, opportunities tied up with economic situation, interpersonal relations, etc.) in place at university and subse-

> quently, in the work placement phase […]. In other words, the decline of the system tends to neutralise the victory obtained in guaranteeing access to university. This makes it more important to ensure the efficient running of the university for the benefit of the working classes. But those who see an increasingly small role for the university in preserving social roles are no longer interested in the efficiency of the educational system, and put up passive resistance to any sort of innovation." [25]

Privately Ruberti rephrased the above, which was written in a language suited to an academic audience, as follows: the university of the privileged was set up to preserve privileges, but as the poor came in this role had to stop. This explains the lack of reforms and of resources. One might describe this as a Marxist view of things or, more simply, a lucid perception of social discriminations. In any case, these musings revealed a sincere sensitivity to social iniquity.

3.7. The politics of research

In the 1970s the Ministry of Education provided largely inadequate funding for university research, both quantitatively and qualitatively. The funds allotted were not commensurate with the growing costs of research activity, and were distributed in two ways: small grants to a large number of lecturers, i.e. indiscriminately, and few large grants to some subjects, without clear grounds. There was a lack of coordination and a lack of evaluation from the scientific community, both prior to and after. The dominant feeling was that having friends in high places and good connections was an advantage over the validity of projects presented and of applicants.

Public research institutes, in particular the CNR, played a supporting role, supplementing meagre ministerial funding with their own resources, disbursed according to its own criteria. Generally speaking, the situation was not conducive to the development of a research policy in the University. Research initiatives indeed were more or less valid, but totally unrelated to one another.

The Ministry, which allotted funding to individual lecturers in accordance with article 286 of the Consolidation Act, did not appear to have the recognised expertise to evaluate grant applications. These re-

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[25] The report of 16 January 1978 is available from the Fondazione Ruberti site.

quests from individual lecturers, working in complete independence, were accompanied by a report from the academic Senate, which assigned a priority level to the project. The *286 Commission* (from Law 286), appointed by the Ministry, grouped projects together by topic on a national level, and evaluated them using criteria not determined by the scientific community. Thus some requests that had a low priority according to the academic Senate obtained grants that were a lot higher that those requested, while others, having top priority, received substantially reduced grants.

In the manifesto presented at the time of his candidature, Ruberti had argued the need for developing a research policy of the University, coordinating funding within the academic community and thus achieving much of the university autonomy that had been sought for a long time.

The University of Rome had its own research funds, which Ruberti decided to use primarily to offset the distortions introduced by the Ministry. Research projects deemed to be top priority but that had not been adequately funded by the *286 Commission*, would receive additional funding. Remaining resources would be allotted to other projects, financed directly by the University[26], and to common research facilities such as the Computing Centre.[27] The allocation of funding was based on the criteria of transparency and sharing: each faculty had its own commission for scientific research, and one of its representatives in the more general university commission. This commission operated publicly according to objective and declared criteria, proposing the distribution of funding to the Senate and to the governing board, which adopted (or turned down) the proposal.

Following this method numerous initiatives arose, such as university research projects, congress funding, some special publications, cultural exchanges, a research database. Just as he had done in his Institute, Ruberti pressed for greater internationalisation, which was normal in some scientific sectors but lacking in others.

The results could be seen on two fronts: on the one hand, the perception of ongoing change in the sphere of research activity, which was promoted and supported according to its peer-assessed validity, on the other the realisation that the coordination of research had been brought back to within the scientific community.

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[26] Newsletter of the University of Rome, II-2, March 1980.

[27] Newsletter of the University of Rome, III-3, March 1981.

Ruberti oversaw the process, and in some cases intervened to support projects that he considered to be very interesting. This was the case, for example, in supporting excavations directed by Paolo Matthiae at Ebla, a city of the third millennium B.C. situated in northern Syria. This is one of the choices that bear witness to Ruberti's sensitivity to research in the humanities. Those expecting an engineer rector interested only in technological and applied research were surprised to see the space being devoted to basic research in all sectors. As Ruberti himself said:

> Action for research in the university is performed every day, regarding concrete problems, starting from the present day, without delay. No project can alter the situation in this field from today to tomorrow, there are natural time frames that cannot be altered, and they are certainly longer than might appear to those involved in research only in terms of planning. Engagement, rigour, intransigence, intellectual honesty must characterise the way we go about things in this sector. This is a clear stance taken in defending fundamental research, basic research. Together with this, there can and must be a concrete commitment to also make a contribution to applied research projects of more immediate interest in terms of topical problems faced by the society we are working in.[28]

Ruberti's success in promoting research, together with his state of independence, had repercussions in the academic world, but also in the political arena, where there was continued talk of university reform. Here Ruberti was busy defending his vision, and when the much heralded reform was promulgated, Decree 382 of 1980, 60% of research funding was allocated directly to universities and not to individual applicants[29]. In university circles the widely held view was that this was Ruberti's victory.

And he believed so too. He was pleased about the results obtained, not so much for the personal success as for the pleasure of seeing the institution he loved prosper. He often said that the combination between the production and transmission of knowledge, between teaching and research, had an unprecedented fascination. Indeed, as already seen, in the eleven years spent as rector, he never wanted to completely leave his primary activities.

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[28] Ruberti, A. *Relazione al Corpo accademico*, 16 January 1978, 18.

[29] Newsletter of the University of Rome, V-3, April 1983.

Fig. 3.10. Visit to the Ebla dig in 1977. Ruberti is first on the left, above. (Ruberti Archive)

3.8. Running the University

Even though the events of 1977 took up a lot of his time, Ruberti wanted to immediately modernise the running of the *Studium Urbis*. At the time the rector had to manage the University, the *Policlinico* and the *Opera universitaria*. The latter performed activities relating to the right to study: student residences, canteens, study grants, activities certainly not related to the teaching and research activities that fascinated Ruberti, who recalls that

> the first order I signed as rector, and thus as president of the Opera, was an order for chips and food at the *Opera universitaria*. That was my first impact with the administrative side of things…[30]

Ruberti decided to work to get management of the right to study transferred to the Region, in accordance with law provisions. And this he did.

A much more complex problem, without easy solutions, was that of the running of the Policlinico. Three different activities were performed in the hospital: research, teaching and medical care, with the presence of university staff and hospital staff. In Ruberti's words:

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[30] Ruberti, A. *Il capitale immateriale*, 57.

> The Policlinico was shared with hospital workers and, as is well known, there is competition between hospital and university personnel. A long-lasting diatribe, as university professors were once in charge of the hospital profession, and chose head physicians. Then hospitals gained independence, and exacted revenge against the ancient thraldom […] I worked to make [the Policlinico] independent. It was managed through an agreement with a local health unit and not through a direct agreement with the Region. I was and am convinced that self-governance is a necessary condition, but not sufficient, it must be supplemented by responsible and effective management […]. The Policlinico also had to face up to the difficulties of both the university crisis and hospital crisis. In the period when the press was making a noise, I would see that at the Policlinico there was the Swiss route or the hellish route. In terms of professional quality the Policlinico was highly regarded […] yet its organisation did not allow adequate exploitation of this quality.[31]

He was able to back up these declarations when he had to be operated on for gall bladder stones. He had the operation at the Policlinico, unlike many exponents of the State, who in similar circumstances would resort to private healthcare.

Fig. 3.11. Ruberti with vice-rector Messinetti signing the framework agreement on the Policlinico, in January 1979. (Ruberti Archive)

In January 1979 Ruberti managed to stabilise healthcare relations with the Latium Region in an agreement which defined, in a reference framework, the programme of cooperation between the Region and

[31] Ruberti, A. *Il capitale immateriale*, xx.

the University[32]. This programme entailed an agreement with the *Ente ospedaliero nomentano*, the hiring of new personnel and the making available of beds not used in the Policlinico, teaching facilities, training and refresher training for medical and paramedical staff. With this initiative the roles and responsibilities of each institution were defined and divided[33].

Ruberti took special care in the area of information. He loved to say that there can be no democratic life without everyone having access to information, and he recalled how often in his work he had had to deal with the technique of *disinformation* and *surprise*, when he was expected to voice an opinion under hasty or emergency conditions on issues about which he had known nothing until a second earlier.

Information and news concerning the University was given in the *Newsletter of the University of Rome*, with ten thousand copies going out to all staff, the press, trade unions, parties, other universities and local authorities. The newsletter was followed personally by Ruberti, who in meetings, often on a Sunday in his home, gave suggestions about the topics, documents and data to be published, and the persons to go to for news. The dissemination of information was completed by the publication of documents containing data and researches that were too big for the newsletter, student guides and annual reports of the chancellor addressed to the teaching staff. These initiatives made a considerable impact, making public news, such as the allocation of funding and assignment of positions, which had always been subject to the utmost confidentiality, giving rise to suspicion. This climate of greater transparency provided a boost for the running of the University.

A fine example of this was the drafting of the building plan. It was standard practice for single chairs or single institutes to exert pressure on the rector in order to obtain spaces and renovation work. Ruberti introduced the new custom that requests should be discussed and approved by faculty boards and then be assessed by the same faculties together with the University's building Commission. In this way all requests were in the public domain, and the building plan was approved without any dramas by the Senate and by the governing board in October 1978.[34] This method was naturally disconcerting to those

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32 Newsletter of the University of Rome, I-1, March 1979.

33 Newsletter of the University of Rome, III-2, February 1981.

34 Newsletter of the University of Rome, I-1, March 1979.

accustomed to private bartering, and diminished the power that the rector might acquire from such negotiations, but it gave the idea of a radical change.

Some of the first documents[35] made public the findings of a research commissioned by Ruberti and conducted by Franco Ferrarotti, professor of Sociology, and Alberto Isidori and Mario Alì, in charge of the rector's secretariat, on the social make-up of the university's student population[36]. This was a pioneering initiative based on a questionnaire to be compiled by the student at the time of enrolment. This made it possible to acquire a realistic picture of the needs and aspirations of students, and to understand the socio-psychological anxiety of the middle classes, increasingly marginalised in a society of advanced capitalism. Ruberti was able to draw conclusions useful for the governance of the University.

The act of governing was very demanding. The working hours of the Faculty of Engineering were gone, replaced by a full-time schedule that rarely allowed breaks. A life spent being escorted, even during summer holidays, led to a state of tension that was wearing for Ruberti and his family.

The act of delegating, both formally and informally, allowed him to lighten his workload and at the same time involve colleagues and make them spirited collaborators. Some opponents were thus coopted and turned into supporters, or *rubertiani*.

In his experience as dean, which he rightly considered to be training for the job of rector, he had developed his own technique for interpersonal relations based on a persuasive presentation of his ideas accompanied by the utmost respect for other people's ideas. He would never criticise his rivals, but would immediately express the belief that the persons he was dealing with had the good of the institution uppermost, just as he did. Yet he made it known that he was not naive, and was able to see through the interests, power games and ambitions of these persons. Then he would give a lucid illustration of his analysis of previous facts, alternatives, possible choices and above all the choices that could not be made without damaging one's own image or that of the institution, in a setting that he himself had made so transparent as to prevent the concealment of less than licit actions. Thus he would present his proposals with a *consecutio* that rendered them inescapable.

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35 Document no. 4 of July 1978, no. 8 of March 1979 and no. 9 of March 1979.

36 Newsletter of the University of Rome, II-3, April 1980.

He was credible because he himself was the first to have given up positions of power, giving away control of the *Opera universitaria*, signing the framework agreement for the Policlinico with the Latium Region, and by disseminating information so as to reduce the murky areas in which vague and doubtful choices could be kept hidden away. Yet he was a man of power, in that he appreciated and indeed pursued the possibility of deciding the destiny of funds, resources, persons and institutions. We might say that he liked to be in command, but only to achieve what he believed was in the collective interest. This indeed is what we ask of a public servant.

Another of Ruberti's strengths, a fact acknowledged even by his detractors, was the absolute confidence that could be placed in his word. He rarely promised anything, but when he did he always honoured the commitment.

The most delicate aspect to be handled is that of relations with political and trade union forces. In order to re-launch the University Ruberti needed greater resources and a modified regulatory framework. These things could only be given by the Government and by Parliament. For this reason he quickly began to contact the world of politics. He often came up against reticence and an unwillingness to assist, hidden behind a mask of smiles and promises. For decades the University of Rome had been the domain of forces lying in the centre of the political spectrum, as was the Ministry of Education. It should have been no surprise therefore that the demands of the *communist rector* should be viewed with suspicion. On the other political side, the support given by the PCI had cooled after the end of the terrorism emergency, and even more after the death of Enrico Berlinguer in June 1984.

Political forces of course had their representatives inside the University, often members of the governing board, the academic Senate, the commissions. These stakeholders had interests that did not always match those of Ruberti and, if their demands were not met, they acted to stifle initiatives, doing all they could to make even the simplest of management tasks tricky and onerous.

Ruberti confessed that he found himself in a vice, the clamps of which were external political forces, which denied him resources, and internal forces, which made it difficult to use even the resources that were available. The aims of these forces were not always openly declared, but would be transmitted indirectly, and in most cases they came with the message that resources would be made available, or

usable, only if a portion could be handled in the ways indicated by these forces. Ruberti developed his own line of action, which consisted of attempting to be convincing about the benefits of his initiatives and agreeing to those requests that did not damage the collective interest. He defended the independence of the university, but was realistic enough to know that it was impossible to avoid any interference. With this strategy he was helped by those to whom he had delegated powers. Alberto Asor Rosa recalls:

> There may have been some horse-trading later, and perhaps they were unavoidable in a global situation that had become heavy, but they were unable to cancel out the original template.[37]

Some University officials were subject to investigations or accused of corruption or other offences, but Ruberti was not touched by the hand of suspicion, and his lifestyle remained consistent with his salary. The sole exception was the so-called *"golden beds" scandal*, with the charge of misuse of Latium Region funds, which caused him a good deal of bitterness. The legal action began in 1985 and concluded in 1989 with his full acquittal due to lack of proof.

Apart from these problems, Ruberti did all in his power to press for a political solution to the university question. On a national level he fought for the modernisation of university structures with the creation of departments, dedicated places for the management of research activity, and PhDs for the training of youngsters embarking on a scientific career. At a local level he backed the need for the creation of other universities in Rome to ease the burden on *Studium Urbis* and create a Roman university system.

His proposals at a national level were successful. Decree 382 of 1980 created departments and PhDs and launched the testing of a new university model. Law 122 of 1979 created the second university of Rome at Tor Vergata[38].

On that occasion Ruberti championed a change of name for the University, back to its old name of *La Sapienza39. He could rightly claim the 'paternity' for both laws, and was considered to be the most in-*

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37 Asor Rosa, A. "L'uomo giusto al posto giusto." *La Repubblica*, 7 August 1987.

38 Newsletter of the University of Rome, I-2, May 1979, I-3, September 1979 and Special issue, June 1981.

39 Newsletter of the University of Rome, III-1, November 1980.

fluential of all Italian rectors. The testing provided for by Decree 38240 was of course put in place immediately, and a significant part of the University became involved[41].

Fig. 3.12. Ruberti with then Education Secretary Franca Falcucci visiting the newly opened Second University of Rome in 1983. (Ruberti Archive)

Three years after his election Ruberti had gained considerable popularity in La Sapienza, and this was confirmed by the results of voting. In 1979 he did not have a single opponent, and he was confirmed as rector with 419 votes out of 630. In 1982 his main opponent was again Fidanza, and he was re-elected with 860 votes out of 1,262. In 1985 he was up against the dean of Medicine, Carlo De Marco, and he again came out victorious, with 1,063 votes out of 1,895.

In the years between 1979 and 1986 the mechanisms by which the University was run became fully operational, with many initiatives such as funding for congresses and conferences[42], student initiatives[43] and libraries and museums[44], new degree courses[45], cultural agree-

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40 Newsletter of the University of Rome, Special issue, October 1981 and, for the direct funding of scientific research, IV-3, June 1982.

41 Newsletter of the University of Rome, V-2, January 1983 and VI-3, June 1984.

42 Newsletter of the University of Rome, I-2, May 1979.

43 Newsletter of the University of Rome, Special issue, July 1982 and V-1, December 1982.

44 Newsletter of the University of Rome, II-5, September 1980.

45 Newsletter of the University of Rome, II-1, December 1979 and II-5, September 1980.

ments[46], inter-faculty research centres[47], inter-departmental centres[48], automation of administrative services[49], Cattid, the Centre for television applications and remote teaching techniques[50], the open university[51], the Cenci-Bolognetti Foundation[52], the Tor di Quinto sports centre[53], the university's publishing house *La Sapienza* and the university's printing centre[54], agreements with local bodies[55], the start-up of PhDs[56], Honoris causa degrees. Ruberti continued to propose innovations, but he was aware that most of what he wanted to do had been done, and the University machine was working at full capacity. He was helped, among others, by Gino Roghi, professor of mathematical analysis, his secretary Pina Cencelli and his technical secretariat, of which Mario Alì was in charge. All of the above would follow him to the ministry.

Contacts with the political world aroused in him the desire to test himself in that setting. Experience of the battles waged at a national level had led him to draw up a vision of the system of research and higher education in Italy which, he believed, needed to be governed in new ways. In the 1980s universities came under the jurisdiction of the Ministry of Education, whereas research was governed by a minister without portfolio. Ruberti believed it would be useful to create a single ministry for both areas, which he called the control centre of research and higher education. He had in mind the reforms needed to re-launch research institutes and achieve independence for universities. He was aware of the growing importance of the research and training system in international competition and in the development of the new information society. Despite being convinced about the important role he was covering as rector of Italy's biggest university, in 1986 he said that he was being under-used.

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46 Newsletter of the University of Rome, IV-2, April 1982.

47 Newsletter of the University of Rome, I-2, May 1979.

48 Newsletter of the University of Rome, VI-1, January 1984.

49 Newsletter of the University of Rome, I-2, May 1979 and III-4, May 1981.

50 Newsletter of the University of Rome, I-2, May 1979 and I-3, September 1979.

51 Newsletter of the University of Rome, VI-2, March 1984.

52 Newsletter of the University of Rome, I-2, May 1979 and III-3, March 1981.

53 Newsletter of the University of Rome, II-2, March 1980, III-3, March 1981 and III-4, May 1981.

54 Cf. the website www.editricesapienza.it

55 Newsletter of the University of Rome, III-4, May 1981.

56 Newsletter of the University of Rome, V-2, January 1983.

Fig. 3.13. Awarding the *Honoris causa* degree to Eduardo De Filippo in 1980. (Ruberti Archive)

His relations with the political left were unsatisfactory. The communist party did not appear willing to give him space, and with the socialists he had not managed to establish stable working ties.

Finally he had meetings with Bettino Craxi, who appreciated his ideas and his openness. In July 1987 the first government of the 10th legislature was formed. Ruberti was nominated, in the PSI quota, as Minister without portfolio for the coordination of scientific and technological research. He resigned as rector.

Ruberti's resignation aroused emotions in La Sapienza. He had been running the University for eleven years, and everybody had become accustomed to him being there. Now it was difficult to think of him as being far away. Academics immediately decided to elect a new rector that would follow the line adopted by Ruberti. Giuseppe Talamo[57] was duly elected, albeit by a narrow margin.

During voting however Tecce was opposed to this candidature, and broke away from the *rubertiano* front. When after six months Talamo resigned for health reasons, Tecce stood as candidate for the rectorship, and was elected.

[57] Talamo was rector of La Sapienza from November 1987 to April 1988.

4. Political activity

In the 1980s the world of politics, into which Ruberti was entering, had some similarities with the university world, from which he came, above all the custom of co-optation. Entry into the university career was by competition, with university professors evaluating and admitting new entrants. A university professor would then serve as a guide for the apprentice in the initial phases of his or her career. Likewise, the political career usually began by collaborating with a politician who introduced the youngster to that world. There were exceptions of course, but generally speaking these two worlds shared the trait of co-optation, which in the university was sanctioned by law and implemented through the instrument of an open competitive exam, whereas in politics the practice was made possible by control exerted by political parties on electoral lists and thus on election results.

Between these two worlds there were relations and 'forays'. It was not rare for a university professor to also be a politician, and to reach the top of the political tree, such as Aldo Moro, Amintore Fanfani, Giovanni Spadolini. It was widely believed that a certain number of university lecturers would have liked to make the move into politics, but the entry of *technicians* was frowned upon by much of the political class. It was said that there were three ways for a politician to ruin himself: the quickest way was by gambling, the most pleasant was with women, the safest was by working with technicians.

But there were also different mentalities. The world of politics did not have the same bonds as the university career which, with its combination of teaching and research activity, gave all its exponents a similar sort of training and similar thought processes. Politicians on the other hand were from various extractions, some well prepared, others

less so. Reasonableness was not always an option, and limits were not always attached to compromises. Almost every politician belonged to this or that political current, to which he or she had to swear loyalty, and which resulted in a struggle for resources, posts, key positions among and in parties. This also happened in the university world, but it was much more intense in politics.

So how did *technician* Ruberti get offered a government post? There were a number of reasons. As already mentioned, up until 1987 the governance of the university had been entrusted to the education secretary, while the governance of non-university research, i.e. of public institutes and businesses, came under the jurisdiction of the minister (without portfolio) for research. In his public addresses as rector and in his articles in national newspapers, Ruberti had backed the choice of a single ministry to govern both areas:

> "The wealth of nations is made up of intangible capital, which has two components: its production through research, and its dissemination through education. Research and education are two parts of the same capital. It is therefore natural to put them together." [1]

He was known as a public figure and admired for his independent thought and because, in governing the University, he had shown ability, sound principles and realism. His plans for a single ministry pleased the socialist leadership, firstly for its merits, secondly because in terms of image it had a positive effect, and thirdly it would give the PSI control of the university, taking it from the Christian Democrats. Thus it was that when the government of Giovanni Goria[2] was formed in July 1987 Ruberti was nominated as "Minister (without portfolio) for the coordination of initiatives for scientific and technological research".

4.1. At the Ministry

Ruberti was aware of the differences between the world he was coming from and that into which he was entering. In the first meeting with his collaborators he made it clear that he could not be the man he had been, due to his belonging to what was called the *socialist delegation to the Government*. It was clear to everyone that his ability to assert his values in a heavily conditioned setting would be subjected to a severe test.

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1 Ruberti, A. *Il capitale immateriale*, 60.

2 Goria was head of government from July 1987 to April 1988.

Fig. 4.1. Ruberti at the "signing in" ceremony for the post of minister, shaking hands with Cossiga, then President of the Republic, in July 1987. (Ruberti Archive)

The difficulties began at once, and were a lot harder than even he could have imagined. According to political pacts, the ministry without portfolio would become a ministry with portfolio, being merged with the ministry for the university. This move however was not without its difficulties, as he himself recounted:

> "When I arrived at the ministry I remember having very many difficulties. The idea was for a decree to be prepared for the creation of a single ministry with portfolio. There had been a precedent: the Cultural Heritage Ministry. There was instant controversy, not only within the DC but also in the PCI.[3] [… the Christian Democrats] were against the idea for a fundamental reason. In the DC there had always been two lines of reasoning on education. Aldo Moro, for example, believed in a unified approach to teaching, while Amintore Fanfani was in favour of putting research first in the university. […] The DC was also opposed because a non-religious person was the head of the university, with the consequent risk of losing the power that had always been held – barring minor exceptions – in the sphere of teaching. I have to say it was a very hard battle, waged over a two-year period. […] I came through only because of my tenacity and determination, talking, discussing, laying out my arguments in favour of this choice."[4]

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[3] Cf. Rodotà, S. "La lite dell'università." *la Repubblica*, 4 August 1987 (author's note).

[4] Ruberti, A. *Il capitale immateriale*, 57 and following.

This hard battle that Ruberti alludes to saw him engaged for a long time. The Christian Democrats were opposed to the decree for the new ministry, and he had to draft a parliamentary bill that was presented to the Senate in August 1987. In this bill Ruberti created a ministry without executive powers, but with powers of governance sufficient to ensure the efficacy of public action, and brought universities and research institutes into a single body, with interactions and possible transfers of personnel. However:

> There began to emerge an opposition, which had hitherto been only potential, to Ruberti and his future work at the ministry. The standard behind which this opposition stood was that of *independence*. For those in the know this term sought to reaffirm the power of the trade unions and of the DC within the CNR, but for many others, in particular many university professors accustomed to abstract thinking, it expressed the confused idea that a minister for the university and research would take more self-government away from the university system than an education secretary was already doing.[5]

Numerous amendments were proposed, often as delaying tactics, and many doubts were raised. Ruberti passed many hours at the Senate, aided by members of his legal office, to adapt the text of the bill to requests made, almost in real time. Fresh objections would then be raised. In the end the Senate promulgated the decree after more than a year had passed, in October 1988. Delaying tactics continued in the lower house, in the culture commission. Ruberti attempted to unblock the situation by mobilising the PSI leadership, but was opposed by Christian Democrats:

Faced by a socialist ultimatum (the law immediately or a decree), Galloni replied that reforms could not be done by decree, and that Parliament cannot be expropriated on the subject of the new ministry. Galloni spoke on the eve of the socialist congress on the future of the university (with Craxi, Martelli, De Michelis, Amato, Ruberti) and after the proposal put forward by *via del Corso* [headquarters of the PSI] of a decree to work around any sabotages to the bill. The education secretary said that the Chamber of Deputies might be pressed to make haste, but there would be no way the situation could be forced.[6]

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5 Figà Talamanca, A. *La vera storia dell'autonomia universitaria*. Roars: September 2012.

6 Cirese, E. "Università, Galloni attacca il Psi: 'Non si fanno riforme per decreto'." *la*

The conflict ended after a few days with an agreement to speed up the path through parliament by blocking any amendments that had not been agreed upon. But there were more amendments, including major ones, especially from socialist Silvano Labriola[7], as they sanctioned the separation between the legal status of university staff and that of personnel working for institutes, going against Ruberti's design, which was aiming for a unified legal status for public sector researchers. Thus in April 1989 the lower house of parliament sent the bill back to the Senate for a final reading. In May the Senate approved it, assigning to it law number 168. This marked the creation of the Murst, Ministry for the university and scientific and technological research.

Ruberti described the procedure as follows:

> The government was formed in July. In August I presented the bill. The need for self-governance was brought up by several parties. While the Ministry of Education had been *dirigiste*, now they wanted an independent university. I was a convinced supporter of self-governance, and this was an opportunity to introduce it in Law 168. There was a long debate in both the Senate and the Chamber of Deputies. In the end the communists were in agreement, and backed the law. But the Christian Democrats and the ministers who served in Education in those two years viewed it as a secular expropriation of the Catholic citadel. […] Article 16 stated that, if within one year the law on self-governance had not been promulgated, the university would have been able to give itself autonomous by-laws. […] And it is thanks to this decree that universities were able to go ahead with self-rule, even though the law on independence had not been passed.[8]

Privately the polemical tones of these words were much fiercer. Having just entered politics, Ruberti had had to face up to a tough power struggle, in which there was little room for the logic of the common interest, and to obtain a victory he had had to suffer some losses. The words "While the Ministry of Education had been *dirigiste*, now they wanted an independent university" mean that he had had to give up his vision of a unified government of the university-research system, as the trap set

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Repubblica, 17 January 1989. Giovanni Galloni was Education Secretary from July 1987 to July 1989.

7 Silvano Labriola was chairman of the committee for constitutional affairs of the lower house from August 1983 to April 1992.

8 Ruberti, A. *Il capitale immateriale*, 61-62.

by article 16 would have been set in motion: parliament would not have approved the law on university independence within one year, and the universities would have had didactic, scientific, financial, accounting and statutory autonomy without precise rules. For Ruberti, with a great knowledge of the university world, this meant leaving academics free to create a plethora of courses, academic titles and institutions.

Naturally Ruberti did not express his dissatisfaction in public, as is clear from the above phrase "And it is thanks to this decree that universities were able to go ahead with self-rule." He had always been a firm supporter of university self-governance, but within a framework that protected the collective interest. He feared that too much freedom would give rise to excesses which, in a reaction, would cause universities to lose their newly-gained independence. His vision would mirror the future to a large extent.

So, having won the battle for the creation of the ministry, Ruberti was about to face another equally demanding challenge: the framework law on independence.

4.2. The law on independence

The independence of universities is implicit in Italy's Constitution, in articles 5, 9 and 33[9], and is clarified by the intervention of the Constitutional Court.[10] Ruberti knew that this potential would remain untapped if State universities favoured the interests of university careers and of institutions, to the detriment of student services. He believed that education had to be public, since the private sector would not have guaranteed equality, equal opportunities and protection of the collective interest. But if the State financed universities, it also had to

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[9] Art. 5: The Republic is one and indivisible. It recognises and promotes local autonomies, and implements the fullest measure of administrative decentralisation in those services which depend on the State; it adapts the principles and methods of its legislation to the requirements of autonomy and decentralisation.
Art. 9 p. 1: The Republic promotes the development of culture and of scientific and technical research.
Art. 33 p. 1: The Republic guarantees the freedom of the arts and sciences, which may be freely taught.
Art. 33 p. 6: Higher education institutions, universities and academies, have the right to establish their own regulations within the limits laid down by the law.

[10] Ruling 1017/1988: The independence of universities is expressed by safeguarding the self-rule of lecturers, but also be assigning to academic bodies the rules by which the institution is run and the running of the institution.

be able to set objectives and check whether they are achieved. Therefore, the independence of universities consisted of being able to determine one's own structures, systems and governing bodies and freely managing one's own resources, but the State would have to maintain its advisory role, establishing programmes, using them to assess universities, and financing them accordingly:

> "What would happen if the government's role was limited to transferring resources to the university without imposing constraints and introducing development plans? […] It is important to check the quality of results, in the areas of both research and teaching, otherwise there is no public policy at all."[11]

So as soon as he became Minister for the university and research, Ruberti hastened to propose a bill on independence, with Law 168 giving him a year to do so. This law was to form a framework for universities and research institutes, establishing for both areas constraints, freedoms and consequent responsibilities.

In greater detail, the bill recommended statutory, regulatory and organisational independence, as well as independence in the areas of research, finance (partially) and teaching. It indicated as governing bodies the rector, the academic senate, the board of directors, faculty boards and department boards. This left some room for manoeuvre as regards their make-up. It contemplated the creation of a senate of students meeting in an advisory capacity. It governed at a national level the CUN, national university council, and relations with the Conference of rectors. It granted regulatory, organisational and financial independence to research institutes. It also recommended principles for the hiring and legal status of personnel, and created an institute for monitoring activities in the sector.[12]

The bill began to be examined in the Senate, with all the red tape and delays described in the previous case. But a new element came to disturb the political sphere, not to mention the whole country: the start of the so-called *panther movement*.

In December 1989 students at the University of Palermo occupied the university, claiming that the Ruberti law would allow the private funding of universities and the entry of businesses in universities' governing boards. This *quasi* privatisation would have favoured science

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11 Ruberti, A. *Il capitale immateriale*, 63.

12 UR - Università e Ricerca, Murst periodical, I-00, November 1989.

faculties and universities in the north, located in industrialised areas, to the detriment of those in the south and of humanities faculties, which would thus have been penalised. It was also argued that as the student senate was only an advisory body, students would be marginalised from the running of the university. There were basically two criticisms: privatisation of the university, and marginalisation of students.

By January 1990 most universities were occupied by students. The occupants held assemblies and drafted documents, slogans and proposals that were circulated via fax. They said they were non-violent, and in some cases there was a hedonistic component.

In December a wild panther had been seen roaming about in Rome. Nobody knew where it had come from, and police forces were unable to catch it. Two young publicists came up with the idea of proposing it as logo for the movement, with the slogan *we are the panther*. From then on the movement was *the panther*.[13]

Fig. 4.2. The panther movement was opposed to Ruberti's law on independence, arguing that it would privatise universities and marginalise students. (Public domain)

The political world adopted a range of stances. The PSI was with Ruberti, and its leader Craxi said that the Panther was merely a mixed-up protest that did not offer any alternatives, *a creature created by some newspapers and the left-wing news channel Tg3*. The PCI sided with the student movement, attacking the Ruberti reform. Luigi Berlinguer, the

[13] Garbesi, M. "Perché noi, creativi della pubblicità, regaliamo uno slogan a quei ragazzi." *la Repubblica*, 21 January 1990.

Fig. 4.3. The logo of the panther movement, created by two young publicists following the sighting of a wild panther in Rome. (Public domain)

rector of Siena university, said he was willing to meet students in the occupied faculties[14]. This marked the final nail in the coffin as regards relations between Ruberti and Achille Occhetto's PCI[15].

The rectors attributed the malaise in universities to the inadequacy of public resources for their autonomous and efficient running, and asked the government to deal with the problem, with both funding and new legislation. The Christian Democrats on the other hand took a more ambiguous position, supporting the so-called *pink panther*, which sought the end of sit-ins, without being in favour of the reform, and denouncing the risk of violence. Ruberti was attacked by the movement, earning monikers such as *Rubertescu*, the executioner, and slogans of the type *The university is not a supermarket*, *You're wrong Minister Ruberti*, and seeking his resignation.

Questions were constantly raised in Parliament, to which Ruberti patiently replied by giving his own thoughts, but refusing to be condescending or to resort to falsehoods:

> I believe we should be talking to youngsters with intellectual honesty, this does not mean agreeing to all their claims, because that would mean not respecting them. We should be honest enough to meet and discuss, saying with sincerity what we are thinking, without adopting the two truths method, i.e. what we say in public and what we say in private.[16]

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14 Garbesi, M. "I magnifici al movimento: 'vogliamo il dialogo'." *la Repubblica*, 26 January 1990.

15 Ruberti, A. *Il capitale immateriale*, 62.

16 Answer to a question in Chamber of deputies, February 1990.

Fig. 4.4. Banners in the occupied universities. Ruberti became the number one target of student protests in 1990. (Public domain)

In the meantime, the bill was getting bogged down in Parliament, and the clock was ticking down to the deadline fixed by Law 168 for the statutory independence of universities and research institutes. In mid-February Ruberti, to get things moving again, was authorised by the Cabinet to modify the bill in order to satisfy the requests made by students. These changes introduced transparency and guarantee mechanisms for public-private relations; intervention to narrow the north-south divide; a greater presence of students and other elements of the university world, with voting rights granted to student representatives on faculty boards and in the academic senate, and for the election of the rector and faculty dean. It also would become mandatory to seek the opinion of students with regard to educational systems and the organisation of services. The movement and the communist party persisted with their opposition, albeit with one or two openings:

> I believe it is right to accept the proposal to exclude private concerns from the board of governors. This would in any case avoid the risk of conflicts of interest, which would arise were the university to enter into agreements with an enterprise that is represented on the board. And I believe that the right way is to forge ties between public and private resources. To draw up procedures for the transparency, monitoring and disputing of agreements. To set aside a percentage of private funding for a university fund, to maintain equilibrium with areas of research that are less attractive for private concerns, or even to finance counter research in particularly sensitive sectors (e.g. genetics). The central is-

> sue however remains that of the role of students, always excluded from the series of sham reforms of past decades, and rightly reacting to the fresh legislative initiative that completely ignored their existence. The Government today says it is ready to consider their fairer presence in different university bodies. I confess I have always had doubts about *cogobierno*. I believe it is more useful to have a reform that really changes, for everyone, the way of governing the university, separating supervisory and day-to-day activities, opening up closed bodies and the unquestionability of decisions. In this sense the role of students can be fundamental, especially if they can help to create an effective and public supervisory authority, which would be of benefit to all university exponents. And there is another barrier to overcome, that consigning students to a passive role with regard to teaching methods. Not only must this be discussed in places where students are present: it is also necessary to begin trying out forms of student evaluation of lecturers (as in other countries; foreign models should not be brought up only when they are convenient to us) and assigning students as tutors of their younger colleagues.[17]

Ruberti had always been a positive advocate of university independence, of remedying north-south differences and encouraging research in the humanities, and he was disappointed that he had been accused of having opposing views to these. The opening of the university to private funding, which was mentioned only in passing in the bill, was a step towards a more modern system similar to that in more advanced nations. He believed that this was more an opportunity than a danger. The creation of a student senate was also the first step towards their involvement in the running of universities. The negative reaction to these two points of the reform appeared to him to be unfair and contrived, in part because these were quite marginal aspects, and had been used to oppose the whole framework of the bill. Finally, he believed that the political world was using student opposition to block the bill, without being seriously interested in the reform. Proof of this came on 16 February, when just 16 MPs were present in the Chamber for the debate on occupied universities. Privately therefore Ruberti said he was convinced that the panther movement had been conceived, steered and exploited by forces that were pursuing their own ends.

In March 1990 the panther movement lost momentum, and between mid-March and early April the sit-ins ceased. There were local fla-

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17 Rodotà, S. "Pantera, è giunto il tempo di trattare." *la Repubblica*, 21 February 1990.

res up to May. But now it was too late for the law on university independence to be approved in time. Ruberti was disappointed, but he did not have much time to suffer, as he was engaged in numerous other initiatives.

4.3. The four-leaf clover and beyond

Notwithstanding the efforts, we might even say struggles, to get the two bills on the single ministry and university independence passed, Ruberti managed to carry forward many other initiatives. His action in government revolved around three areas of ministerial competence: the university, research institutes, the development of scientific activity. In the first years a plant metaphor was used to describe actions: the four-leaf clover, representing four bills: university independence, as already mentioned, teaching systems, the right to study and planning.

The reform of teaching systems, approved in November 1990, broke down academic titles awarded by universities into four types: diploma, level one degree, level two degree and doctorate (PhD). The law introduced other novelties, such as the independence of teaching methods for universities, level one and level two decrees for teaching in schools, and the open university (distance learning). The question of the diploma was the biggest stumbling block. Ruberti wanted a first cycle lasting three years, followed by a further two years for a level two decree, but the time was not yet ripe for this. Opposition was intense, and so it was decided to have two parallel courses, one three-year and one five-year course. Later on, as we know, Ruberti's vision was realised in many degree courses.

The reform of the right to study, approved in November 1991, introduced grants, part-time study for students in universities, student loans, tutorage and career guidance, with cooperation between the university and schools.

Planning actions led to the creation of new educational centres, such as Bari Politecnico and the Second university of Naples. The law, approved in August 1990, was divided into two parts: the first part laid out rules for future university planning, based on three-year plans. The second part related to the enactment and financing of the old four-year development plan for the period 1986-1990. Almost two thousand billion lire was set aside for the five-year period.

The four-leaf clover remained incomplete, since the fourth leaf, the law on university independence, was not approved. Many other initia-

tives however were successful, and if Ruberti had wanted to continue with plant metaphors he would have needed more leaves. Here we might recall the creation of the third university of Rome, the transfer of buildings from the State to universities, the unifying of the careers and salary regimes of university lecturers and researchers from public bodies, the independence of research institutes, the creation of the Italian space agency (ASI), the reform of the national energy and environment agency (ENEA), management of the Antartide programme, support for the national nuclear physics agency (INFN), creation of science and technology parks, support for research in southern Italy, the week of scientific culture.[18]

The best known indicator used to evaluate Ruberti's action is the percentage of GDP invested in research, which in the years in which he was minister grew from 1.13 to 1.31, before falling again.

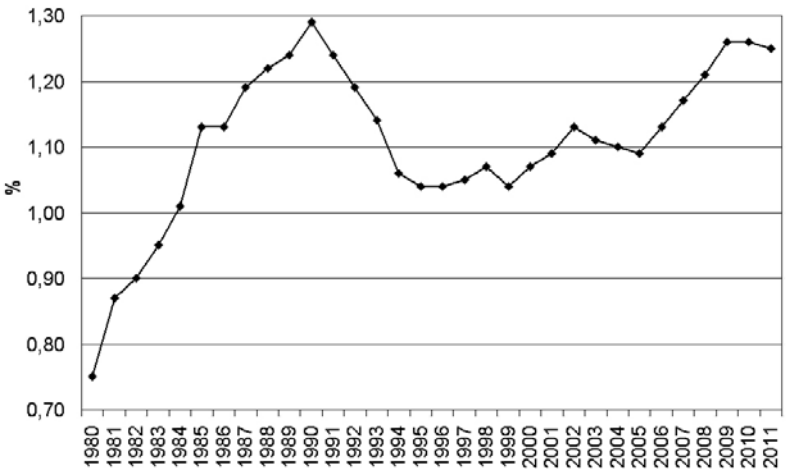

Fig. 4.5 Expenditure in research and development in Italy. Ruberti was government minister from 1987 to 1992. There is no need for further comment. (Istat)

The Murst had become a hot bed of continuous innovations. In spite of all his commitments, Ruberti spent much of his time travelling around and visiting universities and research institutes all over the country, with two main goals: to find out about the reality he was

[18] All of these initiatives are documented in the collection of UR, Università e Ricerca, available at many university and research centre libraries. All references would take too long to cite here.

governing, and to make people aware of the opportunities that his initiatives were creating. Being a convinced upholder of information dissemination, he had created "UR – Università e Ricerca", the ministry's newsletter that was sent to the whole scientific community, newspapers and political forces. He also oversaw the printing of collections of documents along the lines of the model he had overseen as rector. He was also committed to European activities: within the Ministry he had created a new department for international relations, coordinating relations with Europe and other countries. He was admired for his commitment in meetings among European research ministers, culminating in the Italian presidency from July to December 1990.

In June 1992 Giulio Andreotti's government[19] fell. He was replaced as prime minister by Giuliano Amato[20]. The consequences were unexpected:

> Ruberti was removed from the ministry for the university and scientific research, replaced by Bertoldo-Sandro Fontana, a very polemical, very Christian Democrat columnist. The exit of a man of culture, a technician, a socialist that had never held a party office. Antonio Ruberti learned he had been turfed out of the ministry when he saw the news on TV. No one had told him of the changing of the guard, not even a phone call to say "thanks for the work done". There had even been talk of the possible merging of the ministry of Education with that of the University, and Ruberti's name had been on top of the list for this new ministry. With or without the merger, Ruberti had been sure of his reappointment.[21]

The end of the experience left Ruberti with a sour taste, but as was his style he did not make any comments. There had been so many initiatives that had been developed thanks to hard personal efforts but that had not been completed, a wealth of ideas and proposals that he wanted to see through. Five years later he would comment:

> "A thousand billion lire had been set aside for science parks. […] These parks have still not been created. […] Why did we fall from 1.31% to 1.13% of GDP? Why has the degree diploma still not been developed? Why has the degree for teachers only now been re-discovered? These things were a bitter pill for me. We had sown the seeds well in those ye-

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19 The Andreotti government in question lasted from July 1989 to June 1992.

20 The Amato government in question lasted from June 1992 to April 1993.

21 Pepe, G. "A chi l'università? A Bertoldo." *la Repubblica*, 30 June 1992.

ars. All we needed to do was implement the decisions taken and carry on with reforms!"[22]

His experience as minister had made his language *concise and pithy*[23], he went straight to the heart of the problem and came up with solutions and suggestions so quickly that it was hard for his collaborators to keep up with him. The meeting-confrontation with the world of politics had taught him to grasp the moment, an opportunity that occurs once only due to the complexity of the forces at play. He was tense, and sometimes in order to relax he would remember his university days. He had not given in to the doubtful practices of politics, did not claim to be fit for any office, and retained his status as a scientist, an expert in what he really knew something about: the university, and research. He also knew that a technician cannot have too much political success before he must inevitably face a certain backlash, as he had done.

In April 1992 Ruberti was elected as MP. For a few months he devoted himself to parliamentary activity, then in December 1992 he was designated as European Commissioner for research by the Amato Government.

4.4. The European Commission

The Italian Government had naturally been late in designating its members of the European Commission, so when Ruberti met president Delors[24] he learned that some of the tasks of government that most interested him had already been negotiated with others. Delors, for his part, made no secret of his belief that the Italian Government had named persons of little political leverage[25]. Thus it was that relations did not enjoy the brightest of starts.

Delors proposed to Ruberti the post of commissioner for social affairs, but the latter turned it down, saying that he did not feel competent to work in that sector, and would rather not serve if he could not have the job of commissioner for research. Delors had assigned the

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22 Ruberti, A. *Il capitale immateriale*, 74.

23 E. Montale, *Mediterraneo*, in *Ossi di seppia*. Milan: Mondadori, 1926.

24 Jacques Delors was president of the European Commission from January 1985 to January 1995.

25 Antonio Ruberti and ambassador Raniero Vanni d'Archirafi had been designated.

research portfolio to the commissioner for industry, holding that the two sectors had to be connected. As Ruberti recalls:

> "I did not share that view. I believe that this connection will lead to an incorrect bias in favour of productivity objectives. One of the main aims of research is to improve the quality of society (health, the environment, and so on), and must satisfy the primary need of increasing knowledge, regardless of utilitarian, short-term ends. […] I say this […] to make it known that I was not willing to accept any position. I believed that the commitment had to be tied up with the possibility of […] drawing up and following though definite plans. […] and I would have liked Research to be linked to Education and Training."[26]

By Christmas 1992 Ruberti was privately saying that he was unlikely to be assigned any office. But he was wrong. Delors gave him the job of commissioner for research, education and training. [27] Thus it was that Ruberti and his wife moved to Brussels.

Fig. 4.6. Group photo of European Commission 1993-94. (Ruberti Archive)

In Brussels the new Commissioner had at his disposal an organisational machine that was considerably better than that of the Italian ministry. Meetings, dossiers, procedures were handled by professionals in

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[26] Ruberti, A. *Il capitale immateriale*, 80.

[27] The full name was: European Commissioner for technological research and development and for training, education and youth.

a professional and efficient manner, *organisational and technical support that was unthinkable in Italy*, Ruberti recalls. The Commission worked collectively, even though each member had his own responsibilities. Relations with the European Parliament and Council were coordinated.

Ruberti worked for the development of a *European space for science*, i.e. to transform simple cooperation among European nations into a real coordination of policies in the sector.[28] He launched the fourth framework programme for technological research and development, created the European Week of scientific and technological research, launched the Socrates and Leonardo exchange programmes and mobility in the areas of education and training, being alert to the benefits of distance learning and lifelong training. He also worked to ensure the recognition of academic titles in Europe, and entered into numerous international agreements between OECD countries and countries in eastern Europe.

Delors had growing esteem for Ruberti, who helped with the drafting of a White Paper on European growth during the difficult time of the Maastricht agreements and growing unemployment. Ruberti recalls:

> "Going back to […] Delors and his political experience, I have to say that I have an extremely positive opinion. I would say that among the persons I have had the chance to meet in my political career he was the one that that had most retained a soul. Politics generally tends to make people more cynical, and not always is it possible to retain the inspiration, passion and faith in what one believes."[29]

He would often say that international cooperation in the sphere of research is appreciated by everyone when the market is far away, but is opposed and often made impossible when the market place comes into sight. Controlled nuclear fusion was an example that he often cited.

He would also separate civil servants into two categories: those that do only what is allowed, and those that do everything that is not forbidden. He naturally approved the actions of the latter, and his choices were in keeping with this principle. He invented for example

> the *trialogue*, a joint examination of issues in an informal meeting of the three institutions (Commission, Council and Parliament) in order to iron out the problems and speed up procedures: the meeting was

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[28] Cf. Lener, M. *Intervento commemorativo di Antonio Ruberti*, in XIV Chamber Committee, March 2001.

[29] Ruberti, A. *Il capitale immateriale*, 93.

> informal, but suitably publicised and to an extent solemnified in order to commit its participants. Today the trialogue is common practice, and has entered the Community lexicon.[30]

Ruberti's European vision was farseeing, and perhaps ahead of its time. He believed that trade competition was too fierce within Europe compared with the outside, and that a common industrial policy needed to be pursued.

Fig. 4.7. Research ministers at the G8 of 1994 in Japan. (Ruberti Archive)

He wanted to preserve the diversity of European languages and cultures, which he held to be a great wealth for Europe, while promoting a sense of belonging to the European continent as a whole. He saw clearly the great difficulties to be faced when unifying the continent, but hoped that a new generation would become European. And research, which due to its very nature passes beyond borders, would show the way forward. The new generation would not only accept but rather demand a united Europe, facilitating what then appeared to be impossible.[31]

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30 Lener, M. *Intervento commemorativo di Antonio Ruberti*

31 Ruberti voiced these ideas in many documents; see for example *Uno spazio europeo della scienza*, written with M. Andrè in 1994.

Fig. 4.8. Ruberti during the national day for the Socrates project, September 1995. (Ruberti Archive)

Ruberti believed that this period spent serving as European Commissioner was the best time of his political career. It was certainly gratifying for him:

> There was also a difference in terms of acknowledgement of what has been done compared with what happens in Italy. In Italy I introduced some important things, such as the independence of universities, the single ministry, degree diplomas. But were these things recognised? There was no acknowledgement at all. In Europe on the other hand not only was my action deemed to be effective, it was also appreciated and preserved. The new Commission kept research and education together, and new programmes are founded on previous programmes. […] I found a style which, unfortunately, is lacking in my country. People are appreciated according to the things they do […] In Italy on the other hand, especially at this time, one's political affiliation is the first criterion for basing an evaluation on one's actions.[32]

The coming into force of the Maastricht treaties caused a reduction in the number of European offices, and relative terms lasted two years instead of four. So at the end of 1994 Ruberti's term came to an

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32 Ruberti, A. *Il capitale immateriale*, 95.

end, and despite pleas from the scientific world[33], the Berlusconi government did not confirm his re-appointment.

As can be seen from the above quote, the two years spent in Europe had given him the opportunity to experience a work environment in which ideals and visions could steer actions. The man that returned to the Department in January 1995 was able to see, conceive and dream in space and in time, he was able to turn those dreams into reality, and it was a pleasure to listen to him.

4.5. Parliament

In April 1996 general elections were held for the XIII legislature. The "Olive tree" coalition put forward Ruberti's candidature for the Chamber of Deputies in the constituency of his residence (Monteverde in Rome), with the prospect of once again becoming minister for the university and research. After some doubts Ruberti accepted, as he wanted to complete the many projects he had begun when he was minister.

The coalition's electoral committee based his campaign on the slogan *A minister at Monteverde*. He received a lot of votes and was elected by a comfortable margin, as he was respected and enjoyed a good deal of credibility. Despite the promises however, he was not given the Ministry, which was merged with Education and assigned to Luigi Berlinguer[34].

Once again, as was his style, Ruberti refused to complain. Privately he thought he had been used to obtain votes, and was sorry he was unable to make the most of the skills he had acquired. He felt the opposition of a section of the political world, which could hardly stand him, and would willingly have got rid of him for no reason, except for his very success. But he had stood for Parliament and been elected, and so got to work in his new job as MP.

There was a (non-permanent) committee at the chamber of deputies for Community policies. He requested a seat on the commission in view of his experience in Europe. He was given the job, and made of it an efficient instrument for coordinating Italian and European policies. He promoted its transformation into a standing committee. He obtained recognition of the validity of the committee's opinions, and the concession that other parliamentary committees should take into

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33 Cf. "EC Commissioner leaves his mark." *Nature* 372 (December 1994): 395.

34 Luigi Berlinguer was education secretary from May 1996 to April 2000.

due account, when preparing their plans of actions and calendars, the new legislation of the European Union, since a Government coming to the Community assemblies with the support and backing of its own elective assemblies is stronger and more influential. He worked for a more mature and knowing role of Italy in Europe, and worked to gain support for *Agenda 2000* talks. He promoted the creation of the *City of science* in Rome, one of the few major cities still not to have such an institution. He argued that the country had to present itself to Europe

> "without that sense of self-criticism, which is often more a result of a lack of responsibility taking rather than a spirit of impartial rigour, […] but as a closely-knit country, with a strong identity and awareness of its political mission, its own worth and its strategic goals.[35]

In March 2000 he had some health problems, which grew in the following months. The diagnosis was a difficult one, as the disease was practically unknown in Italy. When an effective therapy was finally found, the weakening of the immune system caused his death through an infection. It was 4 September 2000.

His funeral took place, with a non-religious ceremony, in the main hall of La Sapienza, and was attended by the highest State dignitaries, Delors, colleagues from all over Italy and a crowd that filled the hall. Fernando Nicolò, speaking on behalf of his pupils, said:

> "It comes as a surprise that one individual could have such an open mind, able to embrace such a wide field of interests. Yet many of us can testify that in all of those initiatives he made a tremendous effort, one who made the most of time and of human energy, with his ability to motivate people and stir up enthusiasm, and with an energy that never diminished over the years."

Luciano Violante, then president of the Chamber of Deputies, recalled a distinctive trait of the man:

> "He was a man of modern times. Modernity founded on sober secular ethics, never subordinate and never arrogant, on the use of reason and control of emotions, on Europe as a means for stimulating our present day, on a conception of politics that places the need to build before the desire to appear."

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[35] L. Violante, *Ricordo dell'onorevole Antonio Ruberti*, commemoration at Montecitorio assembly hall, 21 September 2000.

Tullio De Mauro, the minister of education, recalled Ruberti's work as rector, combating terrorism and re-launching La Sapienza. Finally Francesco Rutelli, the mayor of Rome at that time, took up the project for a City of science in Rome, promising to carry it through and put Ruberti's name to it. Those who knew him well said that this promise, for the city and certainly not for his name, was what Ruberti would have most appreciated, by virtue of its power to attract youngsters to the sciences. Unfortunately this promise was never kept.

5. A vision for the future

Cognition starts with feeling, as Leonardo reminds us.[1] A cognition of the unresolved problems of the university-research system arose in Ruberti, as in many others, from the sense of social injustice that emerged from the 1968 movement.

But this knowledge and feeling took him beyond, to a vision of a better, fairer world.

To do no more is simply to be a visionary, a dreamer unable to act but merely to indicate *that way of escape, uncertain as foam or a wrinkle in the risen fields of the sea*.[2] Going on, on the other hand, means attaining concrete goals, imagining a way to realise one's vision and struggling to achieve it. Ruberti belonged to this second category of human beings.

We wonder whether his vision and the lines of action used to pursue it still has a sense and merit nowadays, whether it can still show us the way forward. Ruberti himself will answer this question in this final chapter.

5.1. A passion for the university

In November 1999, at the age of 72, Ruberti's tenure was terminated for age reasons. According to university regulations, this meant a period of time in which the old and the new professor work together to ensure a smooth transition.

On that occasion Ruberti gave a keynote lecture at La Sapienza, which started thus:

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1 Leonardo, *Codex Trivulzianus*, 20.

2 Montale, E. *Casa sul mare,* in *Ossi di seppia*. Milan: Mondadori, 1926. (English transl. by A.S. Kline)

> In the lives of every one of us there are important moments that oblige us to take stock. Standing down as full professor is one of those times for anyone who has had a university career.
> One's heart and mind come up against waves of emotions and thoughts. The first emotion I feel is gratitude towards the colleagues in my Department, the Dean of my Faculty and the Rector, and all of you that have given me this show of affection and friendship, the biggest and most important reward for the work I have done at this University. It has given me everything I could have aspired to and wished for. I have been able to make a contribution to the birth and development of research and teaching in a cutting-edge sector, that of automatic control, and perform the highest duty possible for a university professor, that of 'academic paternity', and the training of researchers who were better than I have managed to be. I was given the trust and the resources to do this work, and I will always be grateful to the professors that paved the way for me. Here I would like to remember, in particular, Filippo Neri and Algeri Marino, and the professors I worked under, Giuseppe Evangelisti and Ferruccio Guarnaschelli. I should recall many others however, because in academic life it is the interaction with others that brings about a maturation of one's identity. Among those who have played a special role for me is a colleague with whom I worked for many years both in lecturing and research: Antonio Lepschy, and colleagues with whom I directly developed research programmes. I have received a lot from them both intellectually and on a human level. They are my academic family. This University also honoured me with the chance to serve as both dean and rector. That opened a second stage in my life, causing me to take a more direct interest in the politics of education and research in the exceptional laboratory that is La Sapienza, so emblematic of the process of change going on in our university system and of the broader changes in our society. […]
> The web of personal ties and relations has grown over time, but the links with my University have tended to lose the continuity they had had for many years. Yet they have not been undermined. Indeed they have remained solid, as they were created in the communion of work and the sharing of responsibility. Thus in this University, in this hall, I feel at home. I spent the most important stage of my life here at La Sapienza, with that richness of intellectual and human relations that only the university can give, working to increase and spread knowledge through the constant flow of new generations.[3]

Ruberti names the professors that guided him in his first years, before turning to those with whom he worked, whom he calls his acade-

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[3] Ruberti, A. *L'università tra memoria e futuro*, guest lecture, November 1999.

mic family. And he recalls the pleasure of having taught young researchers who, confirming Leonardo's motto, were "better than him".[4] He closed by recalling the flow of new generations.

He has thus described the flowing of life through the university, where lecturers receive knowledge from their predecessors, increase it, and transmit it to those coming after, immersed in the life-giving *humus* of generations of students, a look into the future. This is the way the future is built, a hotbed of knowledge, intangible capital which, if bestowed, does not break up, unlike economic wealth, but grows.

Ruberti's address is a moving declaration of his love for university life, and it reveals that even when he was minister and European commissioner, deep within his home remained there, in the Roman university. From a political point of view he states that the university, the centre from which knowledge grows and is transmitted, is the lung that allows the whole research system to breathe, it is a reservoir of human resources, the laboratory of the future. Thus the care and the resources that we devote to it are a measure of our commitment to the future. As he said hundreds of times, a country that does not invest in its universities has no future.

But he always added that it is necessary to turn these words into political actions, into facts. He was an engineer, he was not content merely to list principles. He could of course see the difficulties, the problems, *the evil gnawing at the world, the slight twisting of a lever that stops the universal mechanism5, and he was naturally inclined to seek global solutions. Thus his projects for the university merged with the much broader plans to counter the European crisis.*

5.2. A future for Europe

In November 1989 the Berlin wall came down, in December 1990 the two Germanies were reunited, and in December 1991 the Soviet Union broke up. The western world celebrated, but in the twenty years following this event it would discover that this marvellous period would be paving the way, through globalisation, to a state of perennial emergency, in which public governance would be reduced to ever shorter time frames and western countries, in particular Europe and Italy, would be living in a state of precariousness and poverty. Ru-

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[4] *Sad is the disciple that does not surpass his master*, Leonardo, Forster Code III.

[5] Montale, E. *Avrei voluto sentirmi*, in *Ossi di seppia*. Milan: Mondadori, 1926.

berti was disturbed by this state of affairs, fearing dangerous social upheaval that might jeopardise our democracy. He disapproved of short-term politics, and was accustomed to thinking in the long term. *Academic paternity*, which he talked about in his lecture, bears fruit after years. Research activity too begins with an extensive investment in documentation that can become productive after years of study: long-term operations that were a far cry from the convulsive and short-sighted actions carried out by the governments of those years.

And he was deeply upset in seeing a shrinking of space available for youngsters, both in society as a whole, with rising youth unemployment, and in the university career, which continued to narrow. He was direct in asserting that without the input of new blood the university and the entire research system would be condemned to extinction.

The crisis was an international one, and he believed that the solution must come from Europe, with the creation of a truly united Europe. This only, and not the single nations of which it was formed, could achieve the critical mass needed to compete globally with other major economic areas:

> "It is true that everything is becoming global, but within this globalisation there is competition. If we want to avoid hegemonies that exclude Europe, Europe must be united."[6]

But he knew that language barriers, economic competition among national states, prejudice and ancient rivalries are deeply rooted in the European population, and constitute many obstacles to true unification. Obstacles that appear to be insurmountable, and that many Europeanists have tried in vain to overcome.

His idea was that if it was not possible to change the mentality of the current population, it would be possible to do so with future generations. And the place where the majority of these generations would develop their ideas was the university, which could become the breeding ground for a new Europe.

To overcome language barriers, he proposed that every student should study two foreign languages. It was not a random number plucked out of thin air. There are five most common European languages[7], thus two people that speak three of these will necessarily both speak

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[6] Ruberti, A. *Il capitale immateriale*, 93.

[7] English, French, German, Spanish and Italian.

at least one of them, and they will be able to communicate. Linguistic knowledge was just the beginning, it would have to be followed up and reinforced by a period of study spent overseas:

> "The free movement of professions, further consolidated by the Maastricht treaty, implies a single market of professions, and requires a convergence of educational courses, or at least a compatibility of educational courses. It follows that European construction has to respect the diversity of single countries, their traditions and languages, but it also has to bear in mind that final professional skills must be the same. In line with these beliefs, I had supported, by financing universities, the Erasmus programme which, through recognised study periods, makes it possible to learn languages."[8]

Ruberti was actually well aware that one or more years spent studying overseas have a more radical effect than simply learning a language. By going to another country the youngster gets to know a different society, appreciating and assessing the differences, and overcoming prejudices. After such an experience it would be hard for the youngster to be opposed to a more united Europe. So now a new generation will be able to achieve what today appears to be impossible.

Ruberti wanted to extend this outlook to schools:

> "There was talk for the first time of education, the supreme domain of individual countries. While they retained responsibility for educational systems, supplementary actions were planned in order to raise an awareness about European citizenship. […] In the sphere of education and training a creative effort was needed. Whereas for university cooperation there was a tradition of seven years, this mechanism was difficult to transfer to schools, as it is not possible to have exchanges in a population of sixty million students. It was decided to promote the mobility of teachers. This was the path taken as a means of transferring cross-fertilisation, so to speak."[9]

Without even looking at schools, in Europe there are four thousand universities, with almost twenty million students[10]. If every year a quarter of them studied overseas, in ten years there would be fifty million potential European citizens. With the multiplier effect that this might have on families, we would reach 150 million people, almost half of the European population. At that point a united Europe would

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8 Ruberti, A. *Il capitale immateriale*, 82.

9 *Ibidem*, 86.

10 Data correct as at 2012.

be assured. And ten years is not such a long time frame, no longer than that offered, rather more vaguely, by the union of markets:

> "It is necessary to distinguish between what one would like to do, what one would like to happen, and what one can expect to happen. Clearly, Europeanists would like to have everything finished as soon as possible, but experience, and the study of problems, as well as the history of postwar Europe, show how difficult it is to construct a European Union. It is difficult because national states have their own histories, which even divided European science (universal by nature), during the war. We can but think that construction is a gradual process. And a difficult one: different languages, styles, cultures. It is necessary to develop what unites, respecting diversity. Personally I am convinced that more construction goes on in the school than in the market, even though I am aware of the power of the market. […] I firmly believe that it is in the schools and universities that Europe must grow."[11]

In short, the end was to educate and form European citizens, when they are receptive, namely in school and at university. This education would be during study periods spent overseas learning languages.

This was the general plan, and Ruberti also knew how to go about it on the political front. The project had to be supported by intensifying the study of languages, removing relative difficulties and making it convenient to have study periods spent overseas, enabling mutual recognition of titles and facilities for youngsters. And universities had to be supported too, so that they might offer support, reception, accommodation and attract students, a sort of healthy competition with other universities. The human element of the project lay in the universality of culture and the tendency of the individual to be a social animal.

Ruberti believed that this process would be able to create Europe. Perhaps it is still the way forward.

5.3. Enthusiasm

The list of initiatives set up by Ruberti and abandoned by those in government after him would be a long one, and will not be written down here. He himself listed a few in his interview with Maria Grazia Melchionni in 1997[12], which was circulated only in 2011, of which some excerpts have been cited.

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11 Ruberti, A. *Il capitale immateriale*, 101.

12 *Ibidem*, 41-103.

Much longer is the list of initiatives that he was able to complete, with the results achieved. Some but not all of these achievements were recalled in previous chapters.

The risk we run is that of seeing Ruberti as an exception to the norm, endowed with uncommon capabilities not available to most of us, and thus unattainable, a man whose example cannot be imitated. This would be to do him a disservice. He was undoubtedly very intelligent, but his personality would be constructed over time, with the constant effort that he called enthusiasm, a word which originally meant the presence of a god within. The meaning he attributed to this word was not that of a sense of joy, but rather one of total dedication: calm, serene and unswerving. It was with this inner impulse that he was able to improve his researches until they were acknowledged by an international readership, developed his lecturing until it became effective and pleasing without lowering the level of instruction, learned to treat persons with respect even though they did not share his views, perfected his managerial skills, became an excellent mediator, moved smoothly in the world of national and international politics. There also grew within him the energies needed to work intensely, with enthusiasm.

Fig. 5.1. *"Endowed with an amazing ability to mediate, capable even of overcoming the lethal effects of his cigars."*[13]

[13] Tagliasco, V. *Campus*, 23 September 1987.

As he often referred to it, sometimes he was asked how this enthusiasm could be roused, as if restoring the courage of Manzoni's Don Abbondio. He replied that it comes from the firmness of the choice made. He had chosen the university, he loved it and gave all of himself to it. And with the university he had chosen research, teaching, educating youngsters, Europe.

We might ask: would he have made the same choices in today's university, when temporary employment lasts years, careers are slow and uncertain even for the worthiest, resources are few and far between, structures are dilapidated and Europe is so far away?

Undoubtedly he would have done, because he had no fear of difficulties, indeed they were a stimulus for him. And he would have doubled his efforts to improve his university, which is also our university, and to unify Europe, his greater homeland, which is also ours.

And he would so with enthusiasm.

6. Memorial

Wednesday, 6 September 2000.

For someone who has had an honourable life, the moment of death does not mark a final cut-off with the land of the living.

For someone who has lived an honourable life, it is above all the moment when the values underpinning the existence that comes to an end are understood and transferred to the minds of those who remain, forming a sort of secular communion between the dead and the living.

It is a sort of continuity that gives a life some sense, and at the same time gives a meaning to life for everyone, for those have departed and those who remain.

Those who remain grasp the meaning of the life that has passed away, bringing together the strands of those values, and keeping them close by like a favourite book, to find solace at those times when one is in need of reflection, advice, help.

And for those who have lived a life as a public servant, serving the State and the national community, the memory of those values is shared not only by one's friends and relations. That memory also belongs to those who continue to serve in the same institutions, to those who worked with the departed one, to those who have also dedicated themselves to serving the country, whatever one's political persuasion.

As a young researcher, as a professor, as rector of this prestigious university, as government minister, as European commissioner, as MP, as chairman of the commission for Community policies, Antonio Ruberti was a man of modernity.

A modernity founded on sober secular ethics, never subordinate and never arrogant, on the use of reason and on the control of emotions,

on Europe as a means of stimulating our present day, on a conception of politics that placed the need to build before the desire to appear.

In his political work he never forgot his vocation as a scientist. But he was never a finicky specialist.

Rather he sought, with the authority deriving from his multiple experiences, to give value to research, to knowledge, as an intangible capital for society, to be expanded, accumulated and disseminated.

As a Minister he worked to create the Ministry for scientific research. In October 1997, at the National Convention of the Movement of Democrats, Socialists and Labourists, he recounted, soberly and with a touch of irony, the stages of that ideal and parliamentary battle.

In Brussels, just a year ago, on 8 September 1999, he was speaking in an international conference on the knowledge society, stressing the permanent need for research. There is the risk, he said, of focusing attention on the transfer and dissemination of knowledge and on its use, neglecting somewhat the production of knowledge, and thus research. This lack of symmetry is at odds with the key trait of the knowledge society, which is that of increasing knowledge and the role of knowledge. When I talk about knowledge I am referring to the whole spectrum of knowledge: organised knowledge, scientific, technological, artistic, of the humanities, produced by intellectuals by profession; organisational knowledge, produced by organisations (businesses and institutions); the popular knowledge of individuals and groups (diaries, collections, amateurism and folklore).

Even before his passion for research as a key to modernity, his commitment reveals a non-aristocratic vision of knowledge, modern as it comprises multiple forms of contemporary knowledge: technological, of the humanities, even popular.

In this vision nothing is neglected, nothing is surrendered to fads. There is his personality as a scholar, but also the old socialist knowledge of European tradition, which stays well clear of intellectual self-satisfaction and is alert to the need for material, unambiguous forms, in which knowledge is expressed.

Antonio Ruberti founded his plans for Europe on knowledge. In the congress of the Italian Council of the European Movement, held in Bari in December 1999, he came up with an extraordinarily fascinating idea. Just as a common space for goods and capital has been constructed, it is necessary to build a common space for knowledge. If the new paradigm consists of knowledge, it is necessary to pursue

cooperation and integration through the processes of knowledge production and utilisation.

He thus proposed the construction of knowledge networks, arguing that the fabric of these networks may play a role for European unity similar to that played by education and by transport networks in constructing the identity of national States.

His ideas were born of a rigorous analysis of the European situation. He would explain on another occasion that Europe was the cradle of the university, modern science, technology and industry.

Ruberti constantly calls us to seek the cultural roots of our identity. To recall here, in the Main Hall of the capital's first University, Europe's cultural identity as being the foundation of a European dimension of knowledge, is a hommage not merely to the ideas of the scholar and the politician. but also to all those who, like him, have studied and continue to study, to produce and transmit knowledge, and to organise research.

Antonio Ruberti had faith in Europe. But he was fully aware that Europe must not take over national domains. Indeed, as he said in a conference in June 1998, the only way for European institutions to overcome the democratic deficit is to expand the role of national parliaments.

In Dublin, in October 1996, the Conference of Community and European Affairs Committees had approved a proposal for a time frame within which parliaments would be able to discuss proposals with governments, which would put them forward to European institutions for their perusal. Ruberti's proposal would be the most significant aspect of the protocol attached to the Amsterdam treaty, very much reinforcing the role of national parliaments in the drafting of Community legislative acts.

President Ruberti, you have been a dynamic and innovative rector, an efficient government minister, an authoritative and respected MP, in Italy and in Europe. You have constructed things that will remain in the history of Italian modernisation and European democracy.

You were a kind man, and a gentleman.
Your irony never turned to sarcasm.
Your politeness never gave way to condescension.
You were impartial without being neutral.
You were a self-possessed man, capable of listening.
In your life you planted seeds, harvested the crop, and sowed again.
You never said a word too much, yet were never tight-lipped.
You were a righteous man.

At this point, I should say Rest in Peace. This is however a kind hypocrisy. This final embrace is hard to bear.

Yet your values, the sense of your life, your passion, your intelligence, will live on.

They remain in our hearts and in our minds, not like an old portrait, but like a tender, strong plant that will continue to bear its fruits in this Italy, which gave you much and owes you much.

Luciano Violante

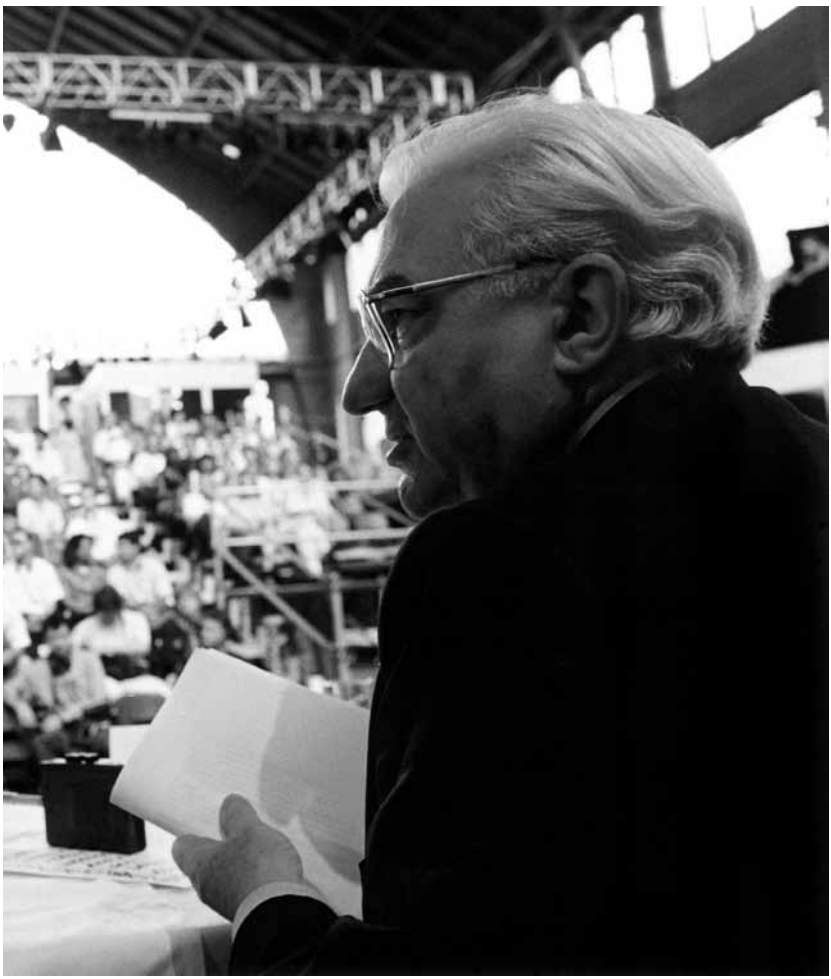

Fig. 6.1. European Commissioner Antonio Ruberti at the *Youth Event*, Les Halles de Schaerbeek 1993. (Ruberti Archive)

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Il Comitato editoriale assicura una valutazione trasparente e indipendente delle opere sottoponendole in forma anonima a due valutatori, anch'essi anonimi. Per ulteriori dettagli si rinvia al sito: www.editricesapienza.it

Collana Maestri della Sapienza

1. Antonio Ruberti
   Claudio Gori Giorgi
2. Angelo Celli
   a cura di Stefano Orazi
3. Antonio Ruberti (English Version)
   Claudio Gori Giorgi

Maestri della Sapienza

▸ Antonio Ruberti

Within the notable successes that Ruberti achieved in his life, and sometimes welcomed with the closet friends, the most important one was omitted or undervalued: he had been able to gain the trust of all the communities in which he had operated. Whether a university institute, faculty, institution, ministry, European Commission or Parliament, people trusted him.

Today more than ever, it is useful to trace Ruberti's life and works to discover the path that permitted him to be considered reliable by so many members of the communities he lived in. That is the aim of this book which tries to map out, beyond a narrative of episodes and memories, a framework of values to support a governance that is concrete, credible and searching for the common good.

Claudio Gori Giorgi is full professor of Automatic Controls at Sapienza University of Rome. From 1969 to 2000 he has cooperated with Antonio Ruberti in the function of professor, dean, rector, minister and member, thereby following his educational, scientific, management, political and public relations activities. The role of disciple and associate has permitted him to know and share to some extent not only the events but also the ways of thinking, the emotional life and the values of the master.

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