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Maria Pia Casalena

ITALIAN WOMEN CELEBRATE GALILEO: FROM NATION-BUILDING TO THE HISTORY OF SCIENCE

During the Risorgimento age a great many writings of varying calibre bore witness to the interest nurtured in all the states of the Italian peninsula for the history of the physical and natural sciences, mathematics, medicine, astronomy. That interest was undoubtedly aroused further by the celebration, between 1839 and 1847, of the nine pre-unification congresses of Italian scientists, and also counted some eminent specialists like the Roman prince Baldassarre Boncompagni, a prolific biographer of the mathematicians of the past.

This interest, however, did not reach women, that is, the already appreciated authors of writings on historical arguments who stood out starting from the early nineteenth century and who, while having soon elected the biographical genre as their ideal measure, practically for the whole of the century never dealt with the issues connected to the experts in knowledge that was then known as 'positive'.[1] Moreover, in the 'century of history', when male history writers appeared to be numerous proving the rooting of the practice of historical writing among the middle-high classes occurring in the substantial absence of specialised university courses, the female writers who published historic works could not belong to social and professional environments which the many titles on the scientists of the previous centuries came from, nor – with some very rare exception – did the Italian women of the Risorgimento and the post-Risorgimento give any evidence of their dedication, albeit in a form not at all private, in the disciplines that at the time received new consecration and new statutes.

The panorama of the production of historical argument that was taking shape in the Risorgimento changed significantly, in some respects, after

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[1] Maria Pia Casalena, *Biografie. La scrittura delle vite in Italia tra politica, società e cultura (1796-1915)*, Milano, Bruno Mondadori, 2012, ch. VI.

the proclamation of the Kingdom of Italy, into one with the new set-up of higher studies and the process of consolidation of new local 'traditions'. From 1877 to 1900, 224 women earned a degree in the Italian universities, many of whom through the faculties of Science, Medicine or Pharmacy. And yet, none of the new graduates, nor the other Italian women, would appear in the construction of the memory and of the national pantheon of the scientific glories. Biographers by taste as well as by necessity, progressively confined – until the Fascist period – in the modern centuries or in the more recent era of liberal-nationalist struggles, those Italian women interested in history did not yet show, on the eve of the Great War, the least propensity for the history of scientific knowledge.[2]

The exception that would confirm the rules, and that presents itself in a very peculiar guise, is constituted by the figure of Galileo Galilei, who in 1897 appears for the first time as a subject of female writing, in the short book consecrated to him by the prolific biographer Luisa Cittadella Vigodarzere. This foray should be understood in a broad sense, in that the title was inserted in a small collection of short monographs that the noble author was dedicating at that time – in favour of young women readers – to the foremost Italian writers of early modern centuries.[3] That it cannot be considered a true and proper beginning neither in the history of the sciences nor in the smaller yet already well-trodden path of the Galilean memory is proven by the two titles that followed, written by two other women. Protagonist of both articles, which appeared in two of the perhaps most prestigious and widespread journals for the young female readership, was indeed Virginia – or Suor Maria Celeste – and not Galileo,[4] proving the selection and specialisation in the construction of the national memory that female pens reserved by way of priority to the cult of the merits acquired by charitable and pious female heroines and not those specifically achieved by physical or astronomical science.

To find the signatures of women who took part in the Galilean celebrations we have to wait for the third centenary of the scientist's death, and even more the fourth centenary of his birth, that is 1964. That would be the year of the beginning – or in one case, of the public consecration – of a lively and multifaceted female participation in the rejuvenation and the

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[2] Maria Pia Casalena, *Le italiane e la storia. Un percorso di genere nella cultura contemporanea*, Milano, Bruno Mondadori, 2016, chs. I-II.

[3] Luisa Cittadella Vigodarzere, *Galileo Galilei. Storia e biografia raccontata alla gioventù*, Torino, Paravia, 1897.

[4] Emma Boghen Conigliani, *Suor Maria Celeste*, «Rivista per le signorine», 17, 1910, pp. 164-172; Francesca Franceschi, *Virginia Galilei*, «Cordelia», 33, 1914, pp. 1449-1453.

reformulation of the cult of the author of the *Saggiatore*, although – as we shall see – the tangible mechanisms of selection of the female authors and the themes evidently deployed by the scientific community and the publishing world did not diminish.

A 'minor' Galileo

Something, in any case, appeared even earlier, between the Liberal age and Fascism, without apparent ties with the official liturgical deadlines. Actually, the first of these works seems to fit somewhat, in a wholly peculiar way, within the celebrations for the nation's jubilee, experienced from minority yet visible positions. The work in question indeed came out in 1911 as the sixth titles of a biographical series dedicated to the «martyrs of free thinking» and bore the signature of Rosetta Pittaluga, an author already known to us for her various forays into the sector of historical writing up to the mid-1930s. A rather significant fact, Pittaluga's Galilei appeared side by side with the biography dedicated to Giordano Bruno by the revolutionary Arturo Labriola, and just before the one that the still then socialist and maximalist, Benito Mussolini, would dedicate to Jan Hus.

Pittaluga, daughter of a Garibaldian and already author of rigorously Lombrosian writings, set out in this book by focusing, rather than on the protagonist himself, on the historical phase in which his trajectory was situated, clarifying that it was a fertile period for martyrs of what the series called «free thinking».

> The era in which his activity as a thinker took place, which determined the spiritual attitude of the century and of which some important traces can be found in all the following centuries, was for Italy an era of absolutism and political and religious reaction. The Spanish domination oppressed it politically, the Catholic Church attempted to constrain his thinking within its absolute dogmatism; the persecutions and the condemnations, the effects of such conditions, characterise the era and create martyrs and victims.[5]

The sources on which Pittaluga based her own short reconstruction were the most classical of the era: the writings of Antonio Favaro, the national edition of the *Opera omnia* and the canonical testimony of Viviani. The author does not cast doubt over the authority of the 'Galilean tradition' which developed between the eighteenth and late nineteenth centu-

[5] Rosetta Pittaluga, *Galileo Galilei*, Roma, Podrecca e Galantara, 1911, p. 9.

ries, but bends it in the manner most suited to her of a broad indictment against a seminal era of despotism and backwardness in Italian culture, an era in which Galileo Galilei found himself filling a role that, as a whole, in Pittaluga's pages does not achieve a true and proper heroism of thinking against the obscurantist dogmas. It rather becomes the testimony – perhaps in a lesser tone but not for this less eloquently – of a clash, even involuntary, between scientific research and the constraints of the dominant doctrines. Indeed, Pittaluga, albeit without going into the detail of the Galilean texts as other female authors would only do later on, firmly stated the involuntariness of the Galilean trajectory, thus implicitly reiterating that it was a question of a scientist intimately convinced of the goodness of the Christian faith. Hence, some corrections were necessary:

> Directly he did not become the upholder of any idea or doctrine in direct contrast with the Catholic religion, never did a situation arise as a voluntary opponent of the Church, nor did he want to be in an open struggle with it, so he is not a martyr of free thinking in the common meaning of the word. His thinking, however, sought to work independently of any established and indisputable authority [...] and the uninterrupted application of this scientific method throughout his life as scholar, led him necessarily to clash against two kinds of established truths: the one of the Aristotelian philosophical current and that of the Catholic religion.[6]

Tracing what was supposed to be at the same time an Italic genealogy of the scientific conquests and a multi-century secular theory of victims of ruthless research, Pittaluga made of Galileo Galilei the heir to the work started by Archimedes.[7] Indeed, in the 1911 booklet the narrative of the life of the Tuscan scientist is reduced almost exclusively to his persecution and trials, while in another place the author affirms that the true greatness of the protagonist lay far more in the astronomical discoveries than in physical research. The story touched upon the 'school' created directly and indirectly by the genius, of which Pittaluga is content to cite Benedetto Castelli, in that he turned out to be a loyal disciple and anticipator of Francesco Redi, albeit donning a monk's attire. In conclusion, a few pages were dedicated to a *Piccola antologia* of Galilean sayings.

The operation for which Rosetta Pittaluga was responsible basically went in an eccentric direction vis-à-vis the contemporary celebrations, more or less recent, of the protagonist's life. In the year in which the Centenary of National Unity was being celebrated, a woman was putting the

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[6] *Ibid.*, p. 10.

[7] *Ibid.*, pp. 42-43.

Galilean story not in the groove of progressive and liberal Italian history that had seen in the national upheaval its maximum accomplishment in the political domain, but rather in an alternative gallery of figures of the national and European history that had undergone martyrdom, to varying degrees, in the attempt to establish a secular and libertarian Italy and Europe, very unlike the liberal-moderate *Italietta* that had risen to power after 1860. Thus, a Galileo not subsumable in the pantheon of the Kingdom of Italy as it was configured, but a citizen of a national society yet to be constructed, alternative, antagonist, and impartial. A repudiation, amongst other things, of that liberal-moderate Risorgimento that with the first congress of the scientists held in Pisa in 1839 had unanimously celebrated the unhappy father of 'positive' and 'useful' knowledge.

Rosetta Pittaluga was supposed to be the only woman to sign a Galilean biography in the liberal age. To come across the next title, we must go halfway through the Fascist era. Indeed, in 1937 Cornelia Benazzoli, with her *Rievocazioni*, reserved a space to the scientist from Arcetri in a biographical gallery that was fully inserted in the furrow of the Italy as a homeland to «poets, saints and sailors» that was absolutely in fashion in roughly those same years.

Strange company, for Galilei, that of a Catherine of Siena or a Saint Bernardino, at least as much as that of an Elizabeth I of Great Britain or Queen Victoria, in a Plutarch that ended with the Mussolinian sayings on Guglielmo Oberdan and on irredentism. Less strange the joint presence of Leonardo da Vinci and, at bottom, ineluctable that of Christopher Columbus, a true glory regained for the Italic land and genealogy.

How, above all, was one to reconcile the story of the man persecuted by the ecclesiastic tribunals with the parables of the holy Tuscan 'politics', just to make the most striking example? In other words, which could be the terms of the illustrious *italianità* in which the conference speaker of the 1930s bundled together a Galileo, a Leonardo and other characters that were so heterogeneous? Clearly, the polemical tirade against the *Italietta* of the liberals here was no less strong that in the compendium signed by Rosetta Pittaluga, albeit for historically and politically peculiar reasons. And here the specific weight of the Concordat certainly also intervened with the gallery of heroes of the faith recuperated as national glories. And yet, in spite of these premises, the words with which Cornelia Benazzoli identified Galileo's place in the luminous story of the Italic lineage harshly echoed the condemnation without appeal of the Scholastica and of every form of tyranny of thought.

With the death of Michelangelo, and with the birth of Newton, the life of Galileo Galilei comes to a close, new ring in the chain of the giants, the titans of thinking, supreme artifices of beauty, who from the dawn of the civil history of the people, through its continuous becoming, mark with deep footprint the path of humanity and agitate the splendid torch of art and knowledge. The calamity of the long, fortunate life of the Maestro, far from appearing enveloped in the halo of legend, penetrates our hearts, bring us to tears for their historic, living truth. We greet in him a hero, a martyr of science, like every great inventor opposed and persecuted.[8]

Considering the tome signed by Benazzoli as a whole, we can infer – minus the pages dedicated to the English queens – some clear directive lines: *italianità*, expressed as a thirst for political and social activism, and the unequal struggle against adversities of every sort that the «true Italians» – and among them Galileo Galilei, up to the apotheosis accomplished by Guglielmo Oberdan – have had to face and, at times, suffer martyrdom. At bottom, Benazzoli does not construct a true and proper biography, and does not delve into the facts – at the time deeply dissected – inherent to the ecclesiastic oppositions. She does not attempt, in other words, a frontal attack on the Tridentine Church, the jealous custodian of the orthodoxy. Galilei, in her words, was the artifice of the «true» but also the «beautiful», and his existence merges with the previous one of Michelangelo Buonarroti and of the other Renaissance artists, opening the doors to an Italy that would find its own realisation in the trenches of the Great War and the Fascist Revolution.[9]

In what way could the artifice of the telescope fuel the tribe of the *littorio* regime? In truth, this is not explained by Benazzoli, limiting herself to place the Galilean trajectory back in the eve of the Great Mussolinian Italy. For this reason, which was the ultimate purpose of all her efforts, it neither seemed useful nor necessary for her to delve deeply into the reasons that pitted the hero-precursor against a Catholic Church that certainly had experienced dark moments but that, in any case, by 1937 had again become the friend of the Italian nation. Benazzoli's Galileo is configured, in the final analysis, as a patient researcher and laborious artisan, whose main merit lay in having guaranteed to Italy a place in the *palmarès* of the scientific discoveries, which at the present moment the regime used as a mouthpiece at the great congresses and with the deafening publicity of the technological advancements.

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[8] Cornelia Benazzoli, *Sullo schermo della storia. Rievocazioni*, Milano, Bocca, 1937, pp. 87-88.

[9] *Ibid.*, pp. 211-229.

It cannot be said that the one woven by Cornelia Benazzoli was among the most cohesive and coherent Plutarchs of the times or the entire post-Unitarian Italian tradition. A result of various conferences, richly illustrated, it often interrupted the sequence of lives to dedicate space to the most diverse arguments. After the life of Galilei, for instance, there are several pages on the twentieth century progress in global and Italian astronomy. This author's lone foray into the sector of historical writing, the 1937 Plutarch turned out to be more of a mishmash of educational and dissemination materials than a rigorous incursion amid the greatness of Italian history, which still emerged here and there in the text by virtue of some finely tuned and all but equivocal sentences.

Hence, our Galileo had been elevated to sainthood, in that he was an unexpected martyr, and a bit of an artist, through the proximity of the great Buonarroti. Nothing was said specifically about his theories, about his experiments, about his method considered in itself and for itself, of his intellectual and scientific evolution, about his social network and his heirs rising to some acclaim in the history of Italian science. Like all the actors in the volume, he was a precursor of the *Duce* in his field of activity; like the fallen in the trenches in 1915-1918, a martyr of the Italic genius. Such is the Galileo fascistized by our conference speaker, in perfect line with the current mythologies of the more or less recent national history. But still a minor Galileo, in this case almost suffocated by the joint presence of Italians whose gestures are more romanceable; a Galileo brought back to the official pantheon, but almost exclusively as the protagonist of unfortunate events, without considering his role in scientific life, at least the Italian one.

Cornelia Benazzoli was in any case the only woman to write about Galilei throughout the Fascist period. In a period when the historical interests of the Italian women were more often pushed in the direction of the ancient age, and in which a significant weight was still borne by the history of the Risorgimento, this isolation ought not to come as too much of a surprise, as the closure is to be considered, dating from the ministry of Giovanni Gentile, vis-à-vis female ambitions in the fields of scientific research.[10] However diligent they may have been as biographers of the heroes of the national history, many aspects about a character like Galileo were still missing, from the specifically scientific to the dynamics of a historical period which our female historians dealt with very little. And, not least, starting from the Risorgimento a tacit veto seemed to be enforced, to

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[10] Paola Govoni, *Studiose e scrittrici di scienza tra l'età liberale e il fascismo: il caso Bottero e Magistrelli*, «Genesis», 6, 2007, 1, pp. 65-89.

the detriment of female writing, when it was a question of Church matters and the history of religion.

Hence, starting from the third century of Galilei's death we can record very few female voices, hidden from view by choice or by substance, in respect to the major Galilean tradition. But even subsequently, we would have to reach the golden years of the history of science to come across the first intellectual biographies of Galilei authored by Italian women.

The fourth centenary of Galileo from a female perspective

While a relevant female career in the field of Galilean studies was already started at the Florentine Museo di Storia della Scienza, we may see how only two, but important, biographies authored by Italian women had to appear around the fourth centenary of 1964. In the space of five years two women, relevant starting from their illustrious surnames, but also for the competences they showed, signed two fully-fledged scientific biographies. The first one was Ginestra Amaldi in 1964; in 1969 it was the turn of Laura Fermi, in collaboration with Giovanni Bernardini. In between, in 1966, there was a bold revisionist attempt, in a purely philosophical place this time, by what was the female soul of the neo-scholastic philosophy starting from the 1940s, Sofia Vanni Rovighi. We must now deal with these three writings deeply rooted into the anniversary's celebrations.

In the meantime, the most widely shared national and international methodological and historiographical references had changed, from Ludovico Geymonat to, above all, Koyré. Ginestra Amaldi, whose volume came out in the then prestigious collection «Classe unica» (for which she had also published the titles on physics and astronomy), added the name of Antonio Banfi. And she started the discussion of a precise periodization. In her opinion three great «scientific revolutions» could be identified: the first one with the birth of the philosophy in Ancient Greece; the second starting with Galilei and brought to fruition with Newton; the third, marked by quantum theory and the theory of relativity.[11]

Ginestra Amaldi moved, in line with the directives of the series, along a dual track: on the one hand, she aimed at a precise positioning of the author of the *Saggiatore* within the history of physics, while on the other, and with greater profusion, she aimed to frame the method within the history

[11] Ginestra Amaldi, *Galileo Galilei*, Torino, ERI, 1964, p. 5.

of philosophy. Hence, genealogies succeeded one another then arrived to Arcetri going via Roger Bacon and William Occam, or from Copernicus and Giordano Bruno, or again – paying homage to *italianità* – from Archimedes and Leonardo da Vinci or from Tartaglia and Cardano.[12] In short, a compendious history of the philosophy of science, apart from physical science in itself, which delved into a 'heterodoxical' Middle Ages as well as in a half-unknown Renaissance, from which ultimately emerged, to the satisfaction of the lovers of the national glories, the luminous triad Archimedes-Leonardo-Galilei.

Amaldi expressed in a clear, but not at all simplistic manner, the theories and achievements of the idols cited, finally concluding that the true greatness of Galilei – authentic turnaround vis-à-vis the previous interpretations – lay in the physical research, while in the astronomical one the premises laid in a divergent way from those of Copernicus and Giordano Bruno could not be forgotten. Now, Amaldi listed thinkers, philosophers and scientists, who had also moved, with serious consequences, off the beaten track of the orthodoxies of various origins, but did not pause to make more poignant her own narrative. Of the persecutions, the trials, the tribulations of the old Galilei and his daughter Virginia much had already been said, and then an alleged disagreement between faith and science. What the author was keen to do was place Galilei within the events that in the early twentieth century had seen a third revolution, if possible, even more extraordinary and striking, both for the theoretical premises and for the material and speculative consequences. As if to say that Galilei was now becoming the actor of a history that had seen him as the protagonist of an episode but not of the whole event, which had come to an unpredictable finale. And Amaldi knew what was being talked about: she was interested in recovering the whole mathematical and physical work of the Italian scientists, starting from Archimedes, so as to place Galilei in what appeared to be a plural and polycentric but, above all, fully historicised, history.

At bottom, insofar as it destined to dissemination, that of Ginestra Amaldi was a difficult text, full of references to works, theories and inventions that a secondary student had to mostly ignore. But it was also a canticle to scientific research, both Italian and international, that urged people to take an interest above all in today's achievements. Moreover, the historical moment fostered this confident emphasis, perhaps much more than a narrative hinging mainly on biographical asperity. Neither religion,

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[12] *Ibid.*, pp. 10-39.

nor the alleged Catholic orthodoxy of the character, really interested in what was the participated and competent exposition of centuries of thinking and scientific research.

Undoubtedly high dissemination, as moreover the one that the series «Classe unica» had set for itself, where hot on the heels of the three titles signed by Ginestra Amaldi there were, amongst others, volumes on neorealist cinema and on twentieth-century literature, besides the innovative *Storia del Risorgimento* by Franco Valsecchi. Contents poised halfway between the high-school syllabus and the academic innovations, for a specialism that did not penalise at all the awareness of the present historical moment.

This was also Amaldi's Galileo, coming out with extraordinary timeliness in the year of the centenary of his birth. A Galileo serenely evaluated, demystified but perhaps for this reason even greater, provided he is considered a hero of a time and a phase, preparatory to the achievements of the twentieth century but not exhaustible in themselves. A history of science that was also an intellectual biography, but above all a history of relations and circulation of ideas, history of traditions variously visible and of consecutive discoveries, the history of Italy but still the story of something intrinsically international as was science.

It is impossible to discern in the 1969 biography the chapters written by Laura Fermi from those conceived by Giovanni Bernardini. The latter was presented as a scientist in all respects in the dust cover, while of the colleague it was only mentioned that she was the widow of Enrico Fermi. At any rate, the structure seems significantly different from what we have found for the book signed by Amaldi. Here an ample biographical narrative can be found apart from the scientific biography *sensu strictu*, to glide over the persecutions and the conclusive period after having dealt with the historical-political scenario which acted as the backdrop to Galilei's life with ample mentions.

Different from the one decreed by Ginestra Amaldi, albeit equally based at first on the works of Geymonat and Koyré, is also the collocation reserved to Galilei: here it is not a question of predecessors or successors, but of the Tuscan as the father of all the research that flourished from the sixteenth century onwards.

> Galilei was among the first, if not the first, to use the experiment in the study of motion. Something still more important, he considered the experiments as the only safe way to verify whether a hypothesis corresponds to the facts and discover the truth. Sometimes he performed the experiments he devised, other times he performed them mentally. Owing to this complete self-assurance, the

experimental orientation had to become the solid base on which modern science has developed.[13]

Hence, notwithstanding his different specific weight in physics and astronomy, globally considered to be the function and the stature of Galileo Galilei can be traced back to the figure of the «grande maestro».[14] That said, and having gone back over in detail the genesis of the theories, proofs and writings of the protagonist, the biography continues by tackling the ecclesiastic ostracism head on. This time the genealogy does not start from Archimedes, but rather from Pythagoras, from which had supposedly started the mathematical-experimental tradition flowing maximally in Galileo (deemed to be superior to Descartes), while on the other side from Aristotelianism the counter-reform had supposedly derived. From that, a series of ineluctable misunderstandings and indeed a true and proper persecution followed that, reconstructed also in archival papers, represents almost half of the whole treatise. From the initial encounters with the Roman clergy all the way to the trial and the recanting, to arrive at the final, certainly not fruitless years, in which the figure reappears – already held dear by the liberal age columnists – of Suor Maria Celeste.

Fermi and Bernardini dedicate to pontifical and Jesuit policies painstaking attention, such as to made this title ideally reconnect with that of 1911 on the «martyr of free thinking». Moreover everything finds space in this biography, where also the errors made by Galileo are listed, where it is pointed out that, although he is the father of free science, Galileo was certainly not a precursor of liberalism in politics, where whole pages are dedicated to collating the sources and a distance is often taken from Viviani's vulgate. Compared with Amaldi's text, here the scientific treatise, no less rigorous, is expressed in much more straightforward language and we also remain more specifically in the fields of physics, astronomy or mathematics without broadening the context to the abstract philosophical theories.

We should stress that the illustrious *italianità* which reverberated even in Ginestra Amaldi's text here is totally absent. Moreover, even the editorial collocation seems very different. Hosted in the collection of Casa Ubaldini in which the only other Italian who appeared was – eloquently – Giordano Bruno, the treatise of Laura Fermi and Giovanni Bernardini went alongside various titles on Marxian and Marxist philosophy, on psychoanalysis,

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[13] Laura Fermi (with Giovanni Bernardini), *Che cosa ha veramente detto Galileo*, Roma, Ubaldini, 1969, p. 18.

[14] *Ibid.*, p. 116.

on a contemporary science that was summarised in the triad Darwin-Einstein-Wittgenstein, and where, finally, appeared the founders of oriental religions and, last but not least, Mahatma Gandhi. The Galileo of the fourth centenary of his birth was thus placed in an unequivocally 'left-leaning' position, strongly anchored to the climate of the protests of the decade, and where a certain anti-Catholic sensibility could also be observed in the title dedicated to Spinoza. So Galileo, restored in the narrative to the greats of Italian history, found at the same time a place in the culture of the political, philosophical and cultural oppositions in a broad sense. A certain polemical intent could be detected already from the title – *Che cosa ha veramente detto Galileo* (What Galilei really said) – moreover in line with the other titles of the series. As detached, totally immersed in the world of research and speculation, as the protagonist sketched out by Amaldi appeared, this one co-authored by Laura Fermi instead unequivocally belongs to a militant line – voluntary or involuntary – that is subtracted from the boundaries of the peninsula to arrive at the transnational shores of intellectual commitment.

Militant – actually strongly and more explicitly militant – albeit in a very different groove, was the article presented by Sofia Vanni Rovighi in the volume dedicated by the Università Cattolica del Sacro Cuore within the scope of the celebrations for the fourth centenary of the birth. Vanni Rovighi already had behind her a two-decades-long reflection on the Italian philosophies, measured by the author through the lens of compliance with the twentieth-century Catholic philosophy best expressed by Agostino Gemelli. The author of a contribution for the 1942 volume, the philosopher of the Università Cattolica set out with these unequivocal words:

> [...] the writer [...] would like to allow an observation on which she had insisted another time, but that does not seem useful to her to repeat because several times she happened to read also in writings that have come out on the occasion of this fourth centenary of the birth of Galileo that the meaning of Galileo consists in his claim for the rights of reason against the principle of authority. Now it seems to the writer that this is a generic and ambiguous way to present Galileo's thinking.[15]

Given that all of philosophy had and would claim the autonomous use of reason, Vanni Rovighi moved on the claim the genuinely orthodox belief of the celebrated scientist:

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[15] Sofia Vanni Rovighi, *Il significato di Galileo nella storia della filosofia*, in *Nel quarto centenario della nascita di Galileo Galilei*, Milano, Vita e Pensiero, 1966, pp. 207-222: 207.

Ambiguous seems to me that way of presenting Galileo as asserter of the rights of reason against authority, because often under the term "authority" one places indiscriminately the human authority of the Aristotelian "philosopher" and the divine authority of the Christian Revelation: two types of authority that Galileo instead distinguishes very well [...].[16]

The heart of the intervention followed, that is the reuniting of the Galilean thinking to the 'good' Aristotelian lesson, which is confuted only in that it derives from the results of the experimental method, without Galileo having ever tried to rise to the status of competing philosopher pushing his mind into metaphysics.[17] Galileo never studied the «essences», but instead circumscribed his own theories to the «measurable affections»: hence, he did not at all invalidate, according to Vanni Rovighi, that Aristotelian philosophy that moreover the 'scholastics' of the Counter-reform had ill-interpreted and badly applied, restricting it to an inhibitory orthodoxy of new discoveries.

Hence, having rescued Aristotle from the Aristotelian degenerations, but actually expelling Galilei from the domain of speculative philosophy, Vanni Rovighi could conclude by inveighing against those who want to give a metaphysics to modern science: that Descartes that would have founded enlightenment as science no less 'totalitarian' than that – certainly prone to stigma – of the Tridentine scholastics. 'Totalitarianism' which in the eighteeenth century only the good Leibniz would have opposed, returning – voluntarily? – to the teaching of Thomas Aquinas enemy of epistemological monism.[18] And to finish, if Galilei clashed with the wicked scholastics, their father was certainly not the Aquinas but instead the deplorable Averroes.[19]

Having averted the Galileo/Aristotle dualism, the philosopher could certainly condemn – with all the technicisms of the case – the conduct of the Baroque Jesuits, without for this reason waiving, actually perhaps the prime purpose of the article, reviving a scholastic and neo-scholastic tradition that from Saint Thomas directly arrives at the organ of the University of Padre Gemelli. And if Galileo did not venture into the treacherous terrain of metaphysics, not for this reason did 'modern' science resist temptation to make of itself 'positivism' against revealed religion.

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16 *Ibid.*, p. 208.

17 *Ibid.*, pp. 211-213.

18 *Ibid.*, pp. 220-222 and 222n.

19 *Ibid.*, pp. 217n, 218n.

If the other authors – above all Pittaluga and Fermi – has oscillated between the 'martyr of free thinking' and the 'martyr' of the quest for the scientific truth, Vanni Rovighi seems interested above all in saving Galileo from even the slightest tangency with Aristotelian philosophy genuinely understood. Galileo was an experimental scientist, not particularly innovative in the use of reason and subservient to technical and technological interest as much as the whole of the physical research community, and as such can be considered a great physicist and/or a great astronomer, but without daring to compare him with 'high' philosophy, which only with Leibniz was able to cohabit with modern science. It is a great self-defence more than a true and proper treatise on Galileo and his work, the one inserted by Vanni Rovighi in the proceedings of a Milanese congress that saw the involvement, amongst others, of Luigi Firpo and Carlo Maria Martini. A decidedly twentieth-century defence, whose ties with intolerant and monocratic scholastic were severed, which was the first to stray from the narrow path marked by Aquinas' teachings. Hence, Galilei and Aristotle, but above all Galilei and Saint Thomas could coexist in a pantheon, this time exquisitely speculative, of Italic glories, precisely in the years when protest put back to the top of the agenda the attack against every principle of authority.

Conclusion: the first female scholar in the field of Galileo studies

Although the names of Amaldi and Fermi may seem to suggest a certain well established division of labour in the Italian scientific community, according to which the women were reserved a fair share of the dissemination for the 'non-specialists', we should point out that, all things considered, the Italian women who wrote about Galileo Galilei starting from the nineteenth century were few and, above all, quite eccentric in respect to the mainstream of the contemporary institutional celebrations. An eccentric character in herself was undoubtedly Rosetta Pittaluga, and, at least as much as she appeared to be in agreement with the imperatives of the educational publications of the Ventennio, the younger Cornelia Benazzoli, who however limited herself to inserting Galilei in a somewhat improvised gallery of above all not properly defined Italian glories. A great deal of space until then had been occupied by the figure of Virginia or Suor Celeste, authentic heroine of filial love married to the love of God. Benazzoli continued to insist on her, after having dedicated a few naïve pages to the great scientist.

Everything changed after 1945. One of the most accredited journals for the first specialists was the «Annali dell'Istituto e Museo di Storia della

Scienza di Firenze», from the Institute which was still awaiting, amongst other things, the second denomination of Museo Galileo. Of this institution born during Fascism, Maria Luisa Bonelli (later, Righini Bonelli) was one of the first authoritative spokespersons in the 1950s and 1960s, and we must identify her in every sense as the first Italian woman specialist in the life and works of Galileo Galilei. Around the centenary in 1964, Righini Bonelli published some important contributions also in prestigious international sites, besides writing about Galileo on several occasions for «Cultura e Scuola».[20] With her, then, we move from occasionality to an organic and prolonged female involvement in studies on Galileo which was started since the 1940s.

Maria Luisa Righini Bonelli (1917-1981) had started to study the science of Galileo since the World War II years, when she was a young graduated in Spanish Literature. In 1942 she had been appointed conservator of the Florentine museum by its first director, the illustrious Andrea Corsini, whom she would succeed as director in 1961,[21] after publishing a good deal on Galileo and other Tuscan scientists. The particular and priority object of Righini Bonelli's studies were indeed the instruments transferred and preserved in the Museo di Storia della Scienza since 1927, about which she matured unequalled knowledge.[22] In 1964, while also publishing several articles on Galilei on various journals for the centenary, Righini Bonelli announced the completion of the restoration of the Galilean memorabilia and instruments she had personally requested and directed; soon afterwards, she was put in charge (first regional and then national) of the research and preservation of the documents of the history of science. Only later, in 1972, did she start to teach the history of science at the University of Camerino, but she had already founded the scientific journal «Physis»

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[20] See for example: Maria Luisa Righini Bonelli, *Il Rinascimento scientifico fiorentino*, «Cultura e Scuola», 16, 1965, pp. 222-227. As a proof of a very enduring interest see also: *Le abitazioni fiorentine di Galileo*, «L'Universo», 38-39, 1957-1958; *Un'esperienza di Vincenzo Viviani fatta dalla Torre di Pisa*, «Physis», 1, 1959, pp. 42-44; *Cimeli galileiani*, Firenze, Olschki, 1962. For the complete bibliography: *Bibliografia degli studi di storia della scienza di M.L. Righini Bonelli*, «Annali dell'Istituto e Museo di Storia della Scienza di Firenze», 7, 1982, pp. 169-184.

[21] Mara Miniati, *Il Museo come frutto delle ricerche di Maria Luisa Bonelli Righini*, in Cristina de Benedictis – Giovanna Giusti – Mara Miniati – Eva Pallotta (eds.), *Presenze femminili nella cultura del Novecento: Adriana Tramontano, Maria Luisa Bonelli Righini, Luisa Becherucci*, Firenze, CentroDi, 2008, pp. 24-28.

[22] See for example: Maria Luisa Righini Bonelli, *Divagazioni su alcuni strumenti e documenti antichi*, «Physis», 3, 1961, 4, pp. 358-370; *Galileo, l'orologio, il giovilabio*, «Physis», 13, 1971, 4, pp. 412-420; *Gli antichi strumenti del sapere: l'eccezionale raccolta di apparecchi originali del XVI e XVII secolo acquistati dai Medici in Italia e oltr'Alpe*, «Scienza e vita nuova», 1, 1979, 1, pp. 49-52.

in 1960. Righini Bonelli dedicated, in over half a century, a great number of writings to various and original aspects of Galileo's life, experiments, instruments and theories: over 150 articles, essays and editions in volumes, which along with the museum work, earned her important international acknowledgements.[23]

Righini Bonelli would have published her biography of Galileo in 1975:[24] the longest, the most accurate, the most documented among those we have discussed so far. A publication by now far from the many occasions for the centenaries, but that obliges us to speak of a meticulous work, of a superior mastery of the facts, the instruments and details, as well as a passion and a personal commitment that made the author one of the first specialists having an international horizon and resonance. In the same year when *Vita di Galileo* came out, Righini Bonelli indeed directed a weighty American volume together with William Shea.[25] And after her, from the 1960s, other female scholars who gravitated around the Florentine museum kept alive, in the specialised journals, an interest in the physicist and the astronomer from Arcetri.

We are by now entering a new phase, a new era of which Maria Luisa Righini Bonelli was undoubtedly a pioneer; female participation would soon begin among the new ranks of university professors of the History of Science; but the role of the Florence museum as a nursery and fulcrum of the Galilean memory, also thanks to its women, would certainly not find itself lacking: actually, new strongly international and multidisciplinary roads would act as the context for the work of Righini Bonelli's heirs.

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[23] Arcangelo Rossi, *Bonelli, Maria Luisa*, in *Dizionario Biografico degli Italiani*, Roma, Istituto della Enciclopedia Italiana, vol. 34, 1988, pp. 478-480.

[24] Maria Luisa Righini Bonelli, *Vita di Galileo*, Firenze, Nardini, 1975. See Alberto Righini, *Maria Luisa Bonelli Righini e la sua* Vita di Galileo, in De Benedictis – Giusti – Miniati – Pallotta (eds.), *Presenze femminili nella cultura del Novecento* (cit. note 21), pp. 21-33.

[25] In 1975 Righini Bonelli published with William R. Shea the important book *Reason, Experiment and Mysticism in the Scientific Revolution*, New York, Science History Publications.