Jewish intellectual diaspora and the circulation of mathematics: Alessandro Terracini in Argentina (1939-1948)

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Abstract

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Erika Luciano

Abstract

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Abbreviations

ASUT	Archivio Storico dell'Università di Torino
AEA, *AT*	Albert Einstein Archives, Hebrew University of Jerusalem, mss. NN. 11128, 56279, 56280
ATCET	Archivio delle Tradizioni e del Costume Ebraici Benvenuto e Alessandro Terracini, Torino
ABTT	Archivio privato famiglia Benedetto Terracini, Torino
BSM	Biblioteca Speciale di Matematica 'G. Peano', Dipartimento di Matematica, Università di Torino
ECA	Emergency Committee in Aid of Displaced Foreign Scholars
SPSL	Society for the Protection of Science and Learning

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OVP, *AT* Oswald Veblen Papers, 1881–1960, Manuscript Division, Library of Congress, Washington, D. C., Subject File, 1918–1960, *Terracini, Alessandro, 1938–1943*, box 34, 33 Fols. not numbered.

OVP, *BS* Oswald Veblen Papers, 1881–1960, Manuscript Division, Library of Congress, Washington, D. C., Subject File, 1918–1960, *Segre, Beniamino,* 1938–1941, box 33, 54 Fols. not numbered.

SPSL, *AT* Archive of the Society for the Protection of Science and Learning, Bodleian Library, University of Oxford, I. Correspondence relating to individual scholars, I.12 Mathematics, *Terracini, Professor Alessandro (1888–)*, File 1938–46, 285/5, fols. 340–87.

ECA, *AT* Emergency Committee in Aid of Displaced Foreign Scholars records, Manuscripts and Archives Division, The New York Public Library, MssCol 922, Series I, Grant files 1927–1949, I.B. Non Grantees 1927–1945, b. 123 f. 25 *Terracini, Alessandro 1939*

The racial laws of 1938 ratified the anti-Semitic turn of Fascism and caused the loss of civil and political rights enjoyed by Italian Jews since the Risorgimento period. Between September and December, 478 state employees at the Ministry of National Education were removed from their positions, more than two hundred scholars dismissed from universities and the administrative staff fired.[1] Israelite students were thrown out of schools of every order and at every level.[2] Furthermore, the so-called Law of Book Cleaning (*Bonifica libraria*) prohibited the use of texts by Jewish authors in all pre-university institutes and denied them any form of publishing contract whatsoever.[3]

Italian mathematics suddenly lost 33 teachers of mathematics and 14 full university professors and tenured lecturers; figures of excellence such as Vito Volterra, Guido Castelnuovo, and Giulio Vivanti, already retired, were purged from academies, learned societies and other places of mathematical networking (libraries, mathematical and physical seminars, etc.).

This complete upheaval in the ruling academic staff had widespread aftermath in regard to the local research traditions and affected the policies of promotions and displacements in and from other institutions. The desire of the Fascist authorities to show that the Jewish contribution to Italian mathematics had been irrelevant[4] was instrumental in increasing the speed and brutality of the turnover.

Following the dismissals, a series of institutional, epistemic and social changes occurred in culture and scholarship, the dynamics of which can be read from two perspectives: a global one, which views scientific change as a 're-organization of

[1]Numerical data are derived from Capristo 2002; Capristo, and Fabre 2018.
[2]Signori 2009.
[3]Fabre 1998.
[4]See L. Berzolari to G. Vacca, Dec. 14, 1938, in Nastasi, and Scimone 1995, pp. 11–12.

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resource ensembles',[5] trying to move beyond the classic discourse of cultural loss and gain, and the individual perspective, that of personal and professional destinies.

The Jewish intellectual diaspora from racist Italy after 1938 is among the global changes originated by racial legislation, and the exile experience of Alessandro Terracini in South America is one example of a happy ending within the context of a dramatic collective phenomenon. As a result of his inability to tolerate professional demotion, social exclusion, economic impoverishment, and complete banishment from scientific and academic arenas, Terracini decided to flee almost immediately, "looking for a space of intellectual survival".[6] For him, the sojourn in Tucumán would be decisive, signifying the beginning of a new stage of scientific activity as a cultural entrepreneur and ambassador of Italian mathematics in Argentina.

'Relegated to a caste of pariahs': the autumn of 1938

Letters can change people's lives: for example, those seemingly aseptic ones consisting of a dozen official lines that, in the fall of 1938, were dispensed to facilitate the removal of the Jewish staff from service at Italian universities.

Signs of the *Provvedimenti per la difesa della razza* – which brutally interrupted a long-term and successful emancipatory path – could actually be traced back some time.[7] The press campaign, followed by the *Manifesto della razza*, and culminating in the racial census in the summer of 1938, were more than enough to predict such a final act.

In announcing the anti-Jewish measures from Trieste (September 3), Mussolini was instrumental in fomenting the 'logical' and 'natural' consequence of the malicious defamatory process that had been developing over the previous months, in which all the traditions of anti-Semitic hatred, both ancient and recent, found complete expression: the anti-Jewish prejudice of Catholic origin, biological racism following the rise of the Italian colonial empire, and the rabid messaging against the Jewish demo-plutocracy and the Judeo-Masonic conspiracy.

Italian high culture in general, and the scientific environment in particular, had not embraced these leitmotifs of classic anti-Jewish propaganda. Some hyper-ideologized institutions, like *Accademia d'Italia* or *Istituto Nazionale di Alta Matematica*, had witnessed sporadic attempts to rewrite the history of science in an Aryan key, together with irregular allusions to the "ancient Eastern and Masonic traditions with which the Israelites, exponents of internationalism, had filled up Italian culture",[8] but this was nothing compared to the phenomenon of *Deutsche Mathematik*. A pragmatic anti-Semitism had flourished, that of the so-called 'comrades' (F. Severi, E. Bompiani, L. Fantappié, etc.), who proclaimed themselves alumni and followers of Jewish mathematicians, but strategically intended to take advantage of the purge of their mentors to extend and consolidate their power and

[5] Ash 1996, 2008.
[6] Terracini 1989, p. 337: '*uno espacio para sobrevivir intelectualmente*'.
[7] Israel, and Nastasi 1998; Israel 2010.
[8] Severi 1941, p. 137: '*antiche tradizioni orientali e massoniche di cui gli israeliti, esponenti dell'internazionalismo, avevano riempito la scienza italiana*'.

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prestige in some specific areas: academia, research centers, cultural institutions, publishing houses, etc. The themes of 'Jewish infiltrations', of the 'absurdly disproportionate number' of Israelites in the ruling class and in the intellectual elite of the country, had thus ended up enjoying significant popularity in the Italian scientific panorama, along with that of instances of favoritism and abuse committed by this lobby. An anonymous report, preserved in G. Fubini's personal dossier, gives a representative cross-section of the convenient anti-Semitic feelings raised in Turin:

> In the University of Turin, School of Mathematics, a few Jewish teachers, Freemason-socialists headed by the all-powerful Prof. Fubini, with a skill and Jesuitism of the worst kind, resort to every measure possible to demolish what the Regime, with titanic efforts, is building. Further, said Faculty is home to tyranny of all types: favoured are the protected ones, the disciples who must one day continue the infamous work, destroyer of the homeland, whilst those who they know they cannot draw into their circle are oppressed, boycotted and damaged in countless ways.[9]

In light of this worldview, it is not strange that traumatic shock was the first reaction to a series of laws with which the State deprived itself of some of its best servants, reducing them to a caste of pariahs:

> so it happened - wrote Terracini to his brother Benvenuto on the same day as Mussolini's Trieste speech - and much more than that all of us expected. There's nothing to do but take the blow, as philosophically as possible, and think about what it will be necessary to do.[10]

Dismay arose for three main reasons: the extent of the discriminatory decrees; the fact that children had also been affected; the silence and indifference of civil society, which the victims of the purge would remember for the rest of their lives. Bewilderment was particularly accentuated in towns like Turin, where, as early as 1938, demonstrations of anti-Semitism had been "but a small thing"[11] and where no one could imagine seeing the walls of central streets covered with proscription lists of Jews, together with murals like 'Death to Judas! We don't want the Jews sent to the concentration camps but pinned to the wall with the flamethrowers'.[12]

Litotes is perhaps the most appropriate rhetorical device to describe Terracini's problematic interpretation of the racial laws. Terracini, who was not a declared anti-fascist and had remained essentially aloof from the political life of the country,

[9]Archivio Centrale dello Stato Roma, Ministero della Pubblica Istruzione. Fascicoli personali. Professori ordinari (1940–70) 3° versamento. Busta 214, *Personal dossier of Guido Fubini*, 7 Oct. 1933: '*Nella R. Università di Torino, Scuola di Matematica, pochi professori ebrei, social-massoni capeggiati dall'onnipossente prof. Fubini, con un'arte ed un gesuitismo della peggior specie si adoperano con ogni mezzo, per demolire quanto il Regime, con titaniche imprese, sta costruendo. In detta Facoltà si verificano inoltre soprusi di ogni risma: sono favoriti i protetti, i discepoli che dovranno un giorno continuare la opera infame, disfattrice della Patria, e sono oppressi, boicottati, danneggiati in ogni modo quelli che essi sanno di non potere attirare nella loro cerchia. Una vecchia Camicia Nera, anonima suo malgrado per evidente necessità*'.

[10]A. Terracini to B. Terracini, Sep. 3, 1938, in Terracini 1990, p. 444: '*ecco dunque è avvenuto e assai più di quel che ci si aspettava. Non c'è che da incassare il colpo prendendosela il meno che si può, e pensare a quanto sarà necessario*'.

[11]Terracini 1968, p. 3: '*ben poca cosa*'.

[12]Artom 1940–41, in Treves 1954, pp. 175–176: *'Morte a Giuda! Non vogliamo gli Ebrei in campo di concentramento, ma bensì al muro coi lanciafiamme'.*

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did not view the 1938 measures as political persecution. He did not even qualify as religious persecution. Brought up in a family that was perfectly integrated into society, Terracini was not a practising Jew, and had gradually reduced his contact with the Turin Jewish community,[13] of which he was, however, still officially a part. His own was a sort of secular religion, which blended with the cult of the homeland, with a form of Risorgimento patriotism in the name of which, like many other young Jews (E.E. Levi, A. Viterbi, E. Artom), he had taken part in the Great War.[14] Finally, the laws of 1938 were not viewed by Terracini as a biological-racial persecution. Unlike in Germany, in our country the conception of the genetic and anthropological inferiority of the Jewish race was inconceivable to any man of culture.

Whilst Mussolini declared that Italy would distinguish itself more by its indulgence than by rigor, bureaucracy proceeded immediately and efficiently with the execution of the purge measures. Terracini was relieved of the chair of analytical geometry starting on September 29 and November 11, respectively. On October 21, he was expelled from the National Union of Italian Officers on Leave; on November 10, he was purged from the Academy of Sciences of Turin and the Italian Mathematical Union.

Apart from the mockery of the conversion *in extremis*, he did not hesitate to react, taking into consideration the idea of submitting a request for counter-discrimination. That meant, in essence, to appeal to a provision of the law that exempted Jews of Italian citizenship from the enactment of racial discriminations on the condition that they had acquired exceptional merits, such as being a member of the National Fascist Party from 1919 to 1922 or one of the Fiume legionaries, the soldiers awarded a cross of merit in the four wars that had taken place within the century (Libyan, World War 1, Ethiopian and Spanish), etc. The latter category encompassed both Alessandro and Benvenuto Terracini, who had been decorated with the silver medal of military valor in 1917. However, only very few practices for reverse discrimination were accepted, which is why the attempts of both the Terracini brothers were met with a sharp rebuttal.

When there was no hope left, Alessandro dedicated his energies to tackling the most painful aspect of persecution: the fact that racial laws had robbed the young generations of a future, preventing them from studying. To guarantee an education for his children, Lore and Cesare, who had been driven out of the lyceum, he then began to reflect on the reorganization of the Jewish school in Turin.[15] Israelite schools, hastily set up in several communities, both small and large, constituted one of the proudest reactions of Italian Judaism against the shame of the 1938 *Provvedimenti*. In Turin, a Jewish school did not need to be set up *ex novo*, because, since 1821, the Colonna Finzi College had been providing elementary education for children of both sexes, free of charge in cases of need. Rather, it was necessary to reconsider the structure and the educational offerings of this institute so as, on the

[13] Treves 1990, p. 28.
[14] Luciano 2018.
[15] Luciano 2017, pp. 196–199.

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one hand, to accommodate the consistent flow of students expelled from state schools at the opening of the academic year 1938–39 and, on the other, to integrate the new members of the teaching staff, which expanded rapidly with the recruitment of scholars fired on racial grounds (for mathematics, B. Colombo, U. Levi, A. Diena, E. Artom and A. Segre). Both Terracini brothers were deeply involved in the task of reorganizing the Jewish school in Turin. Alessandro, in particular, examined the changes to be introduced in order to make it more secular and similar to the standards of national institutions; to this end, the professional and technical classes were flanked by a complete classical curriculum; attention was placed on "the necessity for our schools to be organised with programmes that were in no way inferior to those of the State schools" and "the consequent need to minimize the role of confession"[16]; great effort was made to provide physics, chemistry and science laboratories, suitably equipped with instruments and scientific collections. His efforts played a fundamental role in the modernizing process of the Colonna Finzi College. Although the racial laws required an Aryan ministerial commissioner to carefully supervise all aspects of Israelite schools, up to November 1943, students in Turin were able to benefit from a high-level of education, marked by a truly cultural open-mindedness.

Terracini did not confine himself to playing an advisory role, but rather, at the friendly insistence of M. Falco and M. Tedeschi, fully embraced the idea of creating an advanced study plan, aimed at "ensuring a university preparation" for those young people who were prevented from enrolling at the University in the autumn of 1938. In doing so, he used his professional skills as far as the mathematical curriculum was concerned, obtaining the collaboration of many colleagues (G. Fano, G. Ascoli and B. Colombo) and personally collecting several rejected university applicants from Piedmont and Lombardy. However, in the end, he left the project.

Getting ready to flee: the last months in Turin

Terracini spent the winter of 1939 in Turin, in a sort of voluntary isolation, only mitigated by the affectionate presence of P. Buzano, G. Vallauri, E. Persico and F. Tricomi. To save him from the depression into which he was slipping, his friends lent him the books and articles necessary for his research. Tricomi encouraged him to publish the text *Algebra elementare ad uso dei licei* under a false name. The handbook, which would come out in 1940, constituted Terracini's first foray into the field of mathematics education and represented a unique work in his bibliography. In fact, showing a taste for refined logical-deductive rigor, which one would hardly expect from a geometer belonging to the Italian school of geometry, here he fully developed the modern theory of real numbers according to Dedekind's construction. The fundamental aim to which every author of school texts aspires – claimed Terracini in the preface – is clarity. Rather, in order to meet the demands for rigor that are compulsory in the introduction of the first elements of infinitesimal

[16] A. Terracini to B. Terracini, Sep. 4, 1938, in Terracini 1990, pp. 444–446: '*la necessità che il programma non sia in nessuna parte inferiore a quello governativo*'; '*la conseguente necessità di limitare al minimo la parte confessionale*'.

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analysis, the traditional ancient premises have to be reconsidered. Modern pupils cannot ignore the concept of contiguous classes, which "threaten to reappear at all times".[17] In order to overcome this obstacle, the most valid alternative is to introduce real numbers by passing through the notion of a couple of Cauchy-convergent sequences of non-decreasing and non-increasing rationals, respectively, which approximate by default and exceed the given number.

Given the attention paid to the foundational aspects, *Algebra* by Tricomi (*alias* Terracini) was a very atypical work, both with respect to the contemporary educational literature and in relation to the output of its virtual author, who would actually confess "the slight discomfort" experienced in seeing his name on the cover of a book inspired by didactic tenets completely different from his own and in which "the treatment of some parts was more developed than in his University lectures".[18]

Beyond the commitment for the renewal of the Jewish school, and along with some editorial activity,[19] the last months spent by Terracini in Turin were characterized by the search for a position abroad and preparations for his departure. It was at this juncture that his trajectory intertwined with that of the approximately 6000 Jews of Italian citizenship who 'packed up and left' between the autumn of 1938 and the end of 1941, and the other 4000 who sought refuge in Switzerland after the armistice and Nazi occupation in 1943, when the discrimination of rights turned into the persecution of lives.[20] Among these, some thirty scholars and six mathematicians can be counted: Gino Fano, Guido Fubini, Beniamino Segre, Alessandro Terracini, Beppo Levi and Bonaparte Colombo. Through the help of Jewish aid organizations and thanks to an international web of solidarity, these outstanding mathematicians succeeded in reconstructing their lives and scientific careers in the US, Latin America, the UK and Switzerland. Against expectations, for many of them the *dispatrio* translated into the beginning of a new stage of their lives as cultural organisers and "sowers of ideas" in lands that were "virgin, but eager to produce".[21]

[17]Tricomi *alias* Terracini 1940, p. VII: '*minacciano di riapparire a ogni momento*'.
[18]Tricomi 1967, p. 66: '*la trattazione di alcune cose era più elevata che nelle sue Lezioni per l'Università*'.
[19]In addition to the high school textbook *Algebra*, Terracini also worked with Gino Fano to prepare the second edition of *Lezioni di Geometria analitica e proiettiva*. This treatise was not primarily addressed to teaching, and, as a consequence, despite its being authored by two Jewish scholars, it escaped withdrawal. It would be published in Turin by Paravia in February of 1940.
[20]While much less studied than emigration on racial grounds from the Third Reich, which was the subject of a seminal work (Siegmund-Schultze 2009), since the late 1980s, the Jewish intellectual diaspora from Fascist Italy has been investigated in relation to particular disciplines, such as physics and medicine (Fermi 1968), with reference to gender (Simili 2010) or with regards to specific destinations: the US and the British Empire primarily (Rider 1984; Camurri 2009; Pontecorboli 2013), but also Switzerland (Broggini 1999) and South America (Korn 1983, later Groppo 2002). Historical studies, however, have mainly focused on the quantitative dimension of such a phenomenon and on some of its distinctive features (Toscano 1988, later Capristo 2014). A recent paper (Luciano 2020) can be considered a first attempt to assess the global aspects of the escape from Italy of Jewish mathematicians.
[21]Santaló 1961, p. XXVII: '*en terreno virgen, pero ávido de producir*'.

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The Jewish intellectual diaspora after 1938 – in a certain sense, an involuntary exodus determined by a political cause (i.e., racist policy) – greatly differed from typical Italian emigration, considered both from an economic perspective (the exiles were largely representatives of the well-educated and rich middle-class) and in regard to political profiles: those who left the country, in fact, generally did not engage or aspire to participate in political activity,[22] even though some of the persecuted physicists and engineers who fled to the US, like Fano and Fubini's sons Eugenio, Gino and Ugo, would become activists in the anti-fascist movements and collaborate with the military forces in scientific projects during the time of the war.[23]

Officially, the regime encouraged, stimulated and facilitated the Jewish diaspora. In this respect, suffice it to remember that, in February 1940, B. Mussolini informed D. Almansi, the newly elected president of the Union of the Italian Jewish Communities, that Italian Jews must gradually, but absolutely, leave the Peninsula, and that, between the autumn of 1940 and the summer of 1941, a project for the solution of the 'Jewish Question' was carried out, culminating with the idea of creating a Jewish enclave near Lake Tana in the Ethiopian empire.[24]

By contrast, escaping Italy was not easy, and in order to flee the country, three specific conditions needed to be met: suitably solid financial assets, the ability to count on a network of international contacts, and possession of a certain mentality, that is, the capacity to adapt to new contexts and the courage and the strength to reinvent their own lives and careers abroad, typically in distant, random and unknown settlements. Terracini was among the few who possessed these requisites. First of all, he enjoyed adequate means of livelihood, having been paid off with a decent pension after ten years of seniority as a full professor[25]; secondly, he was a cosmopolitan intellectual, who had been abroad several times; lastly, he could rely on the support of top figures in those solidarity chains that had spontaneously been created since 1933 in order to help Jewish intellectuals and scientists to escape from Nazi-Fascist Europe. The international mathematical elite had, in fact, established personal and professional relationships with the members of the Italian school of algebraic geometry since the end of the 19th century. Such links had been preserved over time thanks to the international congresses of mathematicians, and to trips and study sojourns abroad, for example, those spent by V. Snyder and E. B. Stouffer in Turin, by S. Lefschetz and O. Zariski in Rome, and conversely by G. Fano in Aberystwith.[26]

At the top of the Italian migration chains, there were M. Ascoli for the humanities and T. Levi-Civita, the 'patriarch of the Italian young Jewish mathematicians eager to be embraced by Uncle Sam'. A contact person for and advisor to

[22]Signori 1983; Fanesi 1994.
[23]Fubini, and Brown 2015.
[24]Ministero dell'interno, Polizia politica, Materia, b. 219, *Ebrei italiani*, fascicolo 1, Turin, Jan. 15, 1939.
[25]ATT: Decree of settlement of retirement pension by Terracini and determination of retiring allowances, Feb. 11, 1939 and Sep. 12, 1939.
[26]Luciano, and Roero 2016.

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the Rockefeller Foundation since 1923,[27] a visiting professor in the Americas several times throughout the Twenties and Thirties, and a spokesman for Italian mathematics around the world, from Russia to Latin America, from the US to Japan, Levi-Civita boasted a web of long-lasting partnerships with the leaders in international mathematics: O. Veblen, G. D. Birkhoff, and Lefschetz in the US, G. Hardy, W. D. Hodge and H. F. Baker in the UK, G. De Rham in Switzerland, J. Rey Pastor in Argentina, and many others. His support was crucial for Terracini, as well as for Fubini, Levi and B. Segre.

Immediately after the promulgation of the racial laws, on his return from a holiday at the Lido of Venice, Terracini visited Levi-Civita in Padua, consulting him on this matter, including possible destinations, and asking him for a testimonial, i.e., the document required to obtain a visa and find accommodation outside Italy. It was Levi–Civita who put Terracini in contact with Veblen, Lefshetz, Birkhoff, Snyder and Stouffer, in an attempt to obtain some *academic opening* for him. Chicago, New York City and Ithaca, NY were all considered as options, as well as the states of Illinois and Indiana. It was at least hoped that he might find a temporary position at the Institute for Advanced Study in Princeton, where Levi–Civita had already managed to get Fubini hired.

Aware of the impossibility of continuing his work in Italy and wishing to live in a free country, Terracini then launched into what would have been qualified, with painful irony, as a 'hunt for jobs' (*la caccia ai giobbi*). Starting in early of October, he wrote to colleagues from all over the world and sent requests to the two main international rescue organizations: *the Society for the Protection of Science and Learning* and *the Emergency Committee in Aid of Displaced Foreign Scholars*.[28]

These two agencies, whose scope was to coordinate and finance the recruitment of scholars and teachers fleeing from Europe, served as vibrant scientific bridges between fascist Italy, the UK and the United States. The *Society*, set up by W. Beveridge, L. Szilard and E. Rutherford, relocated and integrated almost 800 scholars between 1933 and 1940 into the UK and the British colonial Empire.[29] Among those rescued was B. Segre, who was awarded a fellowship in Cambridge and, successively, in London and Manchester. A group of British geometers, on the initiative of J. G. Semple and W. D. Hodge, contributed to a fund and collected £128 to secure a grant for the maintenance of Segre and his family until 1942. On the other hand, the SPSL failed in its attempt to support Terracini, who applied for two vacant chairs at the Universities of Aberdeen and Durham.[30] On the US front,

[27] Siegmund-Schultze 2001.

[28] Regretfully, although we found evidence of these correspondences in the archives of the SPSL and the ECA, as well as in Veblen and Einstein's archives, no traces of answers are conserved in Terracini's family papers. Correspondence relating to the emigration of Fubini, Fano, Segre, Terracini and Colombo will be published by Luciano in 2021. For all subsequent quotations from archival sources and letters, we will refer to this work.

[29] Nossum 2012; Nossum, and Kotulek 2015; Williams 2013.

[30] See Terracini to H. J. Buthchart, 3 Mar. 1939 and attached testimonials by Castelnuovo, Levi-Civita and Fano; Terracini to SPSL, Mar. 16, 1939; SPSL to Terracini, Mar. 16, 1939; Terracini to SPSL, May 9, 1939; Levi-Civita to Buthchart, Feb. 28, 1939.

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the rescue organism par excellence was the *Emergency Committee in Aid of Displaced German Scholars*, renamed the *Emergency Committee in Aid of Displaced Foreign Scholars* after the Nazi annexation of Czechoslovakia in March 1938. Founded in New York at the Institute of International Education, and coordinated by R. Murrow and S. P. Duggan, between 1933 and 1941, the ECA brought 300 former scientists out of Nazi-Fascist territories.[31] Among the aspiring émigrés who applied were Terracini and Segre, unfortunately both without success.

To benefit from the support of these bodies, a three-step pathway had to be followed: the applicants had to fill in a personal biographical questionnaire; to collect one or more testimonials, which, in the case of Terracini, would be signed by G. Castelnuovo, T. Levi-Civita, G. Fano, W. P. Milne, J. G. Semple and P. Sperry; and to submit a detailed profile of their professional activity, i.e., a *curriculum vitae*, accompanied by a list of publications. Terracini dedicated his entire last winter in Turin to the preparation of these documents, encountering some difficulties at times, for example, when he was asked to answer specific questions concerning his religious identity: Jewish orthodox or reformed?

A large number of colleagues mobilized in favor of Terracini. Likewise, in the name of strengthening new institutional focuses on mathematical research, some universities (like those of Lima, Rosario, Tucumán and Rio de Janeiro) took advantage of their historic connections to Italy, and teamed up with the SPSL and ECA to find and bring together Italian Jewish mathematicians.[32] International alumni like Veblen, Zariski, Snyder, E. P. Lane, W. C. Graunstein, H. C. Macdonald, A. Reichenberg, and G. and E. Fubini served as links for collaboration, recruitment and mentoring. The engagement of these scholars represents a fundamental lesson in academic rescue and highlights the political role mathematicians can play through scientific diplomacy. Nevertheless, their actions did not always suffice.

A combination of various factors underlies such failures and is particularly informative for us as to the reasons why Terracini's applications were all rejected. In the first place, all the Italian mathematicians who attempted to leave the country were forced to exploit the loopholes of increasingly selective immigration policies. Terracini, Fubini, and Segre, who 'played the American card' between 1939 and 1941, were the latecomers, so to speak, and were destined to beg for the crumbs of an international scientific solidarity long since exhausted in favour of refugees from the Third Reich. As Veblen explained to Terracini with strong skepticism, looking for a position in the US or the UK in the autumn of 1938 signified facing ruthless competition, in an intellectual market already bursting at the seams:

> I am making inquiries to find out whether there is any place in this country where there would be an academic opening for you. You will easily understand the difficulties, namely that we have absorbed so many of the scholars who were displaced from Germany that we are dangerously near the saturation point. I am sure that what has already been done has

[31] Duggan, and Drury 1948.
[32] See, for example, David Fubini and Laurie Fubini Jacobs' private archive: G. García to G. Fubini, Nov. 4, 1938 and Dec. 16, 1938.

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> been a great advantage to this country and that we could benefit by further absorption of European scientists. I will do everything I can, but it would not be right for me to hold out any expectation of success. In addition to the saturation effect which I have just mentioned, there is also the fact that recent political events are strengthening the reactionary influences in this country as well as elsewhere.[33]

Secondly, Terracini's life was not in immediate danger, unlike those of German, Czechoslovak and Polish scholars. In this context, it was therefore somewhat natural that the agendas of the SPSL and ECA led to the postponement of his applications in favour of those of A. Duschek, H. Hamburger or A. Zygmund, for whom the prospective of internment in concentration camps was tragically imminent. Furthermore, to Terracini's disadvantage there was the matter of language skills: he declared that he could read and write English with ease, but he did not speak it fluently, which constituted a serious "handicap"[34] in view of obtaining a permanent teaching position in any Anglo-Saxon country.[35]

Finally, the outcome of his applications was conditioned by a 'matter of style'. We do not have enough evidence to argue this thesis, but we can state that, in all the documents provided (*curricula*, reference letters, commented lists of his publications, etc.), Terracini explicitly asserted his membership in the Italian School of Algebraic Geometry and postulated his scientific filiation from the Italian geometric tradition, opened by L. Cremona and driven to a *führende Stellung* by C. Segre:

> I have studied in the University of Turin, having as Professors Fano, Peano, D'Ovidio, Fubini *and above all Corrado Segre* (Higher Geometry).

> The moment I began to undertake my researches on projective differential geometry happened to coincide with the years in which this branch had just left its initial period. Some of the methods were already formed and had been put to the test through the easier problems which always present themselves at the dawn of the theory; the opportunity of contriving other methods was still kept for the future. *Corrado Segre had shown that* …

> Permit me to add that, *according to a tradition which traces its origin back to the middle of the nineteenth century, Geometry has been particularly cultivated both in England and Italy*. […] If it could not be taxed with self-conceit, I should dare think that perhaps ~~a~~ contact from those two geometrical schools should not be quite useless.[36]

We argue that such clear claims of their own cultural roots were probably not appropriate, especially within the American milieu, where Lefschetz – advocate of the topological approach – would support Terracini, but in such mild terms that Veblen had cause to remark:

[33]OVP, *AT*: Veblen to Terracini, Oct 4, 1938.
[34]OVP, *BS*: Zariski to Veblen, Nov. 3, 1938.
[35]See, for instance, OVP, *AT* and OVP, *BS*: Zariski to Veblen, Nov. 3, 1938; Segre to ECA, Dec 27, 1938; Segre to SPSL, Jan. 7, 1939; Snyder to L. Farrand, Feb. 9, 1939; Veblen to Coble, May 6, 1939; Coble to Veblen, May 17, 1939; Veblen to Coble, May 22, 1939; Veblen to Segre, Dec. 9, 1939; Segre to Veblen, Coble, Lefschetz, Snyder and Zariski, Jun. 1, 1940.
[36]OVP, *AT*: subject file *Refugees*, Terracini A.; SPSL, *AT*: *Some Indications on my scientific papers*, fols. 369–377; ECA, *AT*: *A short account of my scientific papers*, fols. 1r-8r; SPSL, *AT*: Terracini to SPSL, Dec 11, 1938, fol. 355.

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> I think Lefschetz has been a little too restrained in what he says in favour of the two younger men, Segre and Terracini. In my opinion they are both mathematicians of a very high order.[37]

Faced with these difficulties, and given the fact that the daily situation made his emigration and that of his family extremely urgent, Terracini extended the set of possible destinations, investigating openings in Brazil, Peru and Argentina, which were among the "very few possibilities he still glimpsed".[38] The choices were far from random: on April 4, the *Instituto de Matematica* of the *Facultad Nacional de Filosofia* had been founded at the University of Rio de Janeiro. To fill the various vacant posts, several foreign teachers had been appointed (*contratados*), including G. Mammana and A. Bassi, former assistants of F. Severi, with whom Terracini had been acquainted in Turin in February 1938. Moreover, the *Universidad de San Marcos* in Lima had recruited, in 1936, A. Rosenblatt, a former pupil of Castelnuovo and Fano. Finally, in Argentina, Terracini placed his trust in the indelible mark left by the teaching of Enriques, Severi and Levi–Civita (1927, 1931, 1936), as well as in the esteem of Rey Pastor, the eclectic pioneer of mathematics in Latin America, and the friendship of the 'young men': J. Babini, J. Blaquier and F. La Menza, whom he had met at the international congress of mathematicians in Bologna in 1928.

'As a missionary would explain the gospel to cannibals': research and teaching

Interviews with Brazil and Peru had seemed to hold promise when a letter from A. Guzmán, dean of the Engineering Faculty of Tucumán, reached Terracini on June 9, 1939, inviting him to occupy the chair of projective and descriptive geometry for the degree program in architecture and that of higher mathematics within the *Profesorado*. The proposal was accepted by Terracini with warm emotion: "I can't believe I will resume the life of teaching!",[39] he wrote to Levi-Civita on the same day that the call came in.

Argentina was one of the most popular destinations for Jewish intellectuals fleeing from Europe: they added to the political exiles of the first wave of migration (the Italian and Spanish anti-fascists arriving in the 1920s and 1930s) and preceded the *después*, i.e., the fascists and Nazis who would take refuge in this country in the post-war period. Among the Italians, several chose this nation to repair the broken thread of their careers, perhaps in part attracted by the greater ease of Castilian compared to English. In turn, Argentina being a young country, numerous newly created universities put in place a targeted recruitment policy towards persecuted scholars and, between 1939 and 1941, authorized the employment of A. Herlitzka, L. Lattes, B. Levi, R. Treves, G. Arias, M. Finzi, R. Mondolfo, the Terracini brothers, and many others.[40]

[37] OVP, *AT*: subject file *Refugees*, Terracini A.
[38] Bompiani 1970, p. 6: '*le pochissime possibilità che ancora intravede*'.
[39] Terracini to Levi-Civita, 9 Jun. 1939, in Nastasi, and Tazzioli 2000, p. 403: '*non mi par vero di poter riprendere la vita dell'insegnamento!*'.
[40] From 1941 onward, visas would no longer be released to the so-called *indeseables*, i.e., individuals belonging to ethnic or religious groups that were not considered integratable into the Argentine 'racial pot' or who did not fit with the essential character that made one Argentinian.

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Historically remarkable by itself, the moment when Terracini joined the ranks of the *Universidad Nacional* represents the beginning of its 'golden years'. Founded in 1914, this institution included faculties of engineering, pharmacy, law and philosophy. Under the umbrella of the last one, the *Profesorado en Matemática* (i.e., the class designed for the training of teachers) had been established in April 1937. In 1939, the third year was to be implemented, and the existing academic personnel, which comprised just two tenured professors (F. Cernuschi, an engineer who taught probability, statistics and theoretical physics, and J. Würschmidt, a physicist from Cologne, exiled in his turn for racial reasons, who held the courses in experimental physics), did not suffice. Hence, the invitation to Terracini, a mathematician of genuine distinction, whose arrival would be hailed by students, colleagues and local authorities as the "starting point of a new period in the evolution of mathematical studies in the north-west of Argentina".[41]

After taking leave of their family (Alessandro's brother Benvenuto, niece Eva and grandmother Eugenia would join him in Tucumán in 1940), the Terracinis were expected to flee Italy aboard the Augustus liner on August 24, 1939. However, due to the announcement of the Molotov-Ribbentrop pact, they were able to travel to Argentina only three weeks later, on September 16, 1939, after obligatory stays in Quinto al mare and Sant'Alluccio. After landing in Buenos Aires on October 3, and a twenty-four hour train journey across dusty fields on October 9, they finally reached their new home, at n. 417 of Calle Salta, Tucumán.[42] On October 11, two days after settling, Terracini held his inaugural lecture.

Revealing a remarkable linguistic ability, he quickly managed to positively integrate into his workplace. His desire to affirm himself within the global scientific positioning of Argentina and a determination to show gratitude to the country that had welcomed him, as well as the moral imperative to "do one's duty", all acted as motivational stimuli.

Thrilled with his new surroundings, he resumed publishing and took up research, shrugging off the demotivation that the last months spent in Italy had left him feeling. His production, in quantitative terms, was impressive: thirty papers published in less than ten years, all in Latin American journals, both major and minor: *Revista de la Unión Matemática Argentina*, the proceedings of the Academies of Sciences in Rio and Lima, *Boletín Matemático*, *Revista Electrotécnica*, etc. From the qualitative point of view, undoubtedly, the core of his production was made up of translations and reprints of works that had appeared in Italy before 1938, together with articles spurred by studies conducted before the exile. This is the case, for example, of the essays *El invariante de Mehmke-Segre y los sistemas lineales* and *Sobre la existencia de superficies cuyas lineas principales son dadas*.[43]

[41] *Evolución de las ciencias en la República Argentina …*,1979, p. 201: '*punto de partida de un nuevo período en la evolución de los estudios matemáticos en el noroeste argentino*'.
[42] Terracini 1968, pp. 123–124.
[43] Terracini 1940a; Terracini 1940b. It is interesting to quote verbatim the excerpts of Terracini's curriculum vitae submitted to the SPSL and ECA pertaining to the sources of his first two Argentinian works (SPSL, *AT*: *Some Indications on my scientific papers*, fols. 375–376, 377): "Tricomi had defined the "density" of a correspondence between points of a space S_3 and planes of

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The former constituted a tribute to the expertise of his old austere and beloved mentor, Corrado Segre, at the beginning of Terracini's new scientific life in Argentina. The simple projective characterizations of this invariant had been given by Segre for two plane curves, in 1897, and by P. Buzano for two surfaces in space S_n ($n > 2$). In two papers dated 1936, Terracini had projected an interpretation of this invariant by virtue of the conception of density of dualistic correspondences.[44] In the 1940 reprint, he provided further applications of the preceding concepts to the theory of the congruence of lines.

The second essay relied on the contents of two notes presented by Terracini in 1937 and 1939, respectively.[45] Submitted for publication in English to the *Annals of Mathematics* in the winter of 1938–39, the article finally appeared in Spanish as a monographic issue of the *Unión Matemática Argentina*. In this paper, chiefly dedicated to the links between the geometry of planar webs and the projective differential geometry of surfaces, Terracini responded to a question asked by W. Blaschke and G. Bol in their *Geometrie der Gewebe* (Berlin: Springer, 1938). Terracini obtained a characterization of Segre's 5-webs as solutions to a certain non-linear differential system. Under additional simplifying hypotheses, he succeeded in integrating the resulting system explicitly.

The particularities of the appropriation of these works by the local audience deserve an in-depth analysis of their own, but they can be credited with the creation of a working group in differential geometry that would be joined by many young Argentine mathematicians, from L. Santalò to F. Herrera and M. Cotlar.

However, Terracini not only returned to some of his previous studies, but also managed to re-target his research activity so as to be in step with the new scientific framework. In 1941, for example, appraising works by E. Kasner and J. De Cicco, he inaugurated a new line of investigation into a particular type of ordinary third-order differential equations and their integral line systems, which he called equations and systems (F) and (G), some of which had arisen in the study of the trajectories of positional forces fields in a plane.[46] According to Togliatti:

another space which is intended to measure, so to speak, how close to each other are planes corresponding to points lying in the neighbourhood of a given point. But he had confined himself to the analytical expression of the density. I have found its geometrical significance, and also a relation with the notion of the total curvature. Moreover, as the metrical notion of curvature leads to the projective invariant of Mehmke-Segre, so two correspondences as before mentioned give rise to a projective invariant. An application to rectilinear congruences"; The interest which has again risen regarding principal lines and our relatively scarce knowledge about them make it opportune to sound their theory more deeply. For instance, as Blaschke points out in his new book "Geometrie der Gewebe", it is not yet known whether - the differential equation of the principal lines being arbitrarily given a priori - the existence of a surface having those principal lines may be asserted. I have occupied myself with this problem in these last months and arrived at an affirmative conclusion. I also found that - an arbitrary surface being given - it is always possible to map it on several others with preservation of the principal lines".

[44] Terracini 1936a; Terracini 1936b.

[45] Terracini 1937; Terracini 1939.

[46] Terracini 1941a.

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> we are here in the realm of the so-called geometry of differential equations. Moreover, not only are the links of these works evident and implicit - on the contrary, I would say that they are in the very nature of the contents - , but so are those among all of Terracini's projective-differential research with the theory of differential equations, both ordinary and partial.[47]

Terracini combined research with a frenetic teaching commitment: three courses per year, one in didactics within the *Profesorado*, one in analytic geometry at the graduate level and one of advanced mathematics, typically of higher geometry, for the master program. In addition to presenting themes never before addressed in Latin America, such as the theory of groups, complex variable functions, algebraic functions and the calculus of variations, Terracini contributed through his teaching to the diffusion of the vision and didactical assumptions typical of the Italian school of geometry.

In this regard, two of Terracini's courses held in Tucumán between 1939 and 1948 particularly stand out. The first, entitled *Metodología*, was a two-year teaching course on the foundations of mathematics, aimed at students enrolled in the teachers training program.[48] Drafted in Turin in the summer of 1939, and refined on board the Augustus transatlantic that carried him and his family to Buenos Aires, it was a lucid synthesis of the two currents of thought out of Turin that Terracini had had the opportunity to compare: those of Segre and Peano. In the first part, by adopting as a reference the series *Questioni riguardanti le Matematiche Elementari* (Bologna: Zanichelli, 1924–1927) by F. Enriques, the axioms of elementary geometry were dealt with in their technical, historical and methodological aspects. In the presentation Terracini often reported *verbatim*[49] the contents of the famous lectures delivered by Segre at the teachers' training school in Turin, which he had attended in 1910–11. In his university years, however, Terracini had also been trained by Peano in infinitesimal analysis and, although distrustful of the capacity of a strictly formal approach to mathematics, he had appraised the key assumptions of such a procedure. Thus, in the second part of his lectures in methodology, he presented the axioms of arithmetic on the basis of the *Formulaire de mathématiques* edited by the Peanian group (Torino: Bocca, 1894–1908), highlighted the most recent debates on meta-mathematical questions (consistence, independence, categoricity) and even taught Argentinian students to read the Peanian logico-ideographic language.

Likewise, the course of *Matemáticas Superiores* held in 1943 took up the subjects of Terracini's lectures on the theory of groups and topology delivered in Turin in the years 1931–32 and 1935–36.[50] In proposing a first primer of

[47]Togliatti 1969, p. 402: '*Siamo qui nel campo della cosiddetta geometria delle equazioni differenziali. Sono del resto evidenti ed impliciti, direi anzi che sono nella natura delle cose, i legami non solo di queste ma di tutte le ricerche proiettivo-differenziali di Terracini con la teoria delle equazioni differenziali, sia ordinarie che alle derivate parziali*'.

[48]BSM, Terracini's archive: notebook N. 19 (*Metodología*).

[49]Terracini's manuscipts on methodology are literal translations into Spanish of several passages from Segre's lectures.

[50]BSM, Terracini's archive: notebooks N. 9 (*Due geometri del secolo XIX Luigi Cremona e Sophus Lie*), N. 14 (*Argomenti vari di geometria (topologia)* and N. 28 (*Matemáticas Superiores*).

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Cremonian transformations, Steiner surfaces and F^3 surfaces, he believed he was offering his audience a fine portrait of the Italian geometric Risorgimento. The lessons on Lie's theory of continuous transformation groups, in turn, led him to celebrate the work of the Norwegian geometer in Argentina, on the occasion of the centenary of his birth, but simultaneously gave him the cue to illustrate the role of Segre and his followers in the diffusion of this address of geometrical studies.

The success of Terracini's tuition was enormous, and all the students who had the chance to attend his lectures "kept as an indelible memory the impression received by the high intellectual level, learning and clarity of exposition of this great Master".[51] An entire generation of young Argentinian mathematicians got to know algebraic and differential line-geometry, projective differential geometry in hyperspaces, and geometry on an algebraic curve from the synthetical point of view through Terracini's interpretations and narratives. As F. Herrera, one of the five students who took the 1939–40 course in higher mathematics, would remember:

> A wonderful world opened before my mind. […]. I think that none of the students present in that class had the slightest idea of what a group was, in its specific mathematical meaning, but ten minutes of the very clear explanation by Professor Terracini, provided with simple examples taken from Elementary Geometry, Algebra and Mathematics, sufficed so that all of us appropriated the substance of such an important concept without any intellectual stress. Over the years, I consolidated the idea that, in those unforgettable lectures, Prof. Terracini explained to us the foundations of the aforementioned theory, as an experienced missionary would explain the gospel to cannibals.[52]

Taking the voice of Italy over there: public conferences and publishing

Apart from the divergence of individual trajectories, the Jewish mathematical emigration from fascist Italy was characterised by one striking feature. Rather than being merely a set of individual exile experiences, it was the diaspora of a research school almost in its entirety. Indeed, all the refugees belonged to the Italian school of algebraic geometry, all of them shared a strong cultural relationship with the University of Turin, where they had been students and/or professors, and all of them were interested in promoting the work and style of the team to which they felt they belonged, thus transplanting the best of Turin's mathematical traditions into their host countries.

In Terracini's case, it was not only through his teaching that he passed down the best results of Segre and Peano's research teams. He brought overseas the voice of

[51] *Evolución de las ciencias en la República Argentina …*, 1979, p. 202: '*conservan como un recuerdo imborrable le impresión que les produjo el alto nivel intelectual, la sapiencia y la lucidez de exposición de este gran Maestro*'.

[52] Herrera 2000, p. 106: '*Un mundo maravilloso se abrió ante mi intelecto. […]. Creo che ninguno de los presentes en aquella clase tenía la menor idea de lo que, en su específica connotación matemática, era un grupo, pero bastaron diez minutos de la clarísima exposición, ilustrada con sencillos ejemplos de la Geometría Elemental, del Álgebra y de la Matemática, para que todos captáramos sin mayor esfuerzo mental la sustancia de tan importante concepto. A lo largo los años, afiancé la idea que, en aquella inolvidable clase, el Prof. Terracini nos explicó lo fundamentos de la teoría aludida, como un misionero avezado hubiera explicado el evangelio a los caníbales*'.

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the 'viejo mundo' even more through the organization of public conferences and radio broadcasts and through the creation of a sovra-national mathematical journal.[53]

Among his various initiatives, it will suffice to remember the following few. In September of 1941, Terracini held some meetings on *Origines de algunos conceptos geometricos* in Rosario, Universidad du Litoral, at Levi's invitation.[54] These conversations recapped the main contents of a series of lectures held in Turin in 1934 at the mathematical Seminar of the University and the Polytechnic of Turin, subsequently published in *Periodico di Matematiche* [(4), 15, 1935: 1–21]. Shortly thereafter, he returned the invitation by asking Levi to deliver, in Tucumán, a cycle of seminars on mathematical logic.[55] These talks, informed by Terracini and Levi's previous common background at Turin University, provided some general insights into the studies in the algebra of logic and propositional calculus carried out by the Peanians between the late nineteenth and early twentieth centuries. Beyond their intrinsic value (diminished by some misunderstandings and imprecisions[56]), they largely contributed to the dissemination in Latin America of Italian logic, insofar as they made the basic principles of ideography comprehensible to a public that, in most cases, was neither qualified to understand the demonstrations and methods proposed in *Arithmetices Principia* or in the *Formulario* nor equipped with the wherewithal to source these works. Levi's *Correría en la logica* would be recollected by Terracini as:

> a dive – at that moment and in that place – into the Italian intellectual world. To Tucumán had come Beppo Levi to give those lectures, and at the same time our friend Leone Lattes, professor of Forensic Medicine at the University of Pavia, then living in Buenos Aires, whom I had invited on behalf of the Argentine Scientific Society to speak about blood groups. Also in Tucumán were my brother Benvenuto and another friend of mine, Renato Treves, now a professor at the University of Milan. What we had created in those days was really a little Italy.[57]

Still more influential, in terms of cultural legacy, was Terracini's commitment in the field of publishing. Compelled to leave behind his personal library, which he fortunately found intact upon his return home, Terracini was suddenly aware of the distance from Europe and the difficulty in obtaining books and journals. His decision was immediate: to create a high-quality journal specialized in exact

[53]For example, in ABTT, the typewritten text of the radio podcast devoted to *Geometría descriptiva y su valor formativo* is preserved, 1942, fols. 1–5.
[54]Terracini 1941b.
[55]Levi 1942.
[56]For instance, Levi's idea of a proof is out of date; logic and metalogic levels are frequently confused.
[57]Terracini 1963, p. 599: '*vissute come un tuffo - in quel momento e in quel luogo - nel mondo intellettuale italiano. Erano venuti a Tucumán Beppo Levi per tenere quelle conferenze, e contemporaneamente l'amico Leone Lattes, professore di Medicina legale all'Università di Pavia, residente allora a Buenos Aires, che avevo invitato per conto della Società scientifica argentina a parlare dei gruppi sanguigni. Erano anche a Tucumán, come professori, mio fratello Benvenuto e l'altro amico Renato Treves, oggi professore all'Università di Milano. Era veramente una piccola Italia quella che avevamo costituita in quei giorni*'.

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sciences and affiliated with the *Universidad Nacional*: the *Revista de matematicas y fisica teorica*. Less than a year after Terracini had settled in Tucumán, in December 1940, the first issue was published. Together with the *Publicaciones del Instituto de Matematica* and the *Mathematicae Notae*, both edited by Levi, the *Revista* excellently filled a gap in the South American scientific press. To avoid the risk of making it a journal with only a local circulation, Terracini and the co-director F. Cernuschi spared no effort. Terracini himself nourished the journal with a dozen papers and reviews, obtaining the collaboration of Einstein, Veblen, P. Erdös, R. Courant, L. Godeaux, and É. Cartan, and giving Levi-Civita, Enriques, Fubini, Fano, G. Ascoli, G. Loria and other Italian colleagues silenced by racial laws the opportunity to begin publishing again.[58] His entire family was busy with the progressive typing of manuscripts, translating texts, proofreading, etc. Awards were not long in coming. Papers were submitted to the *Revista*'s editorial board from the four corners of the world and, in turn, in his role as chief editor, Terracini built himself a network of international contacts far larger than the one that he had created before emigration.[59]

'Years of anxious search for news'

For Terracini, emigration to Latin America, which had begun as a sort of exile mourning the loss of his cultural roots and national identity, turned out to have a truly professional twist. In a very short time, he achieved considerable influence and established himself as one of the 'fathers' of mathematics in Latin America. He who had been expelled from all Italian learned societies was coopted as a member of the *Sociedad Científica Argentina* the day after his arrival in Buenos Aires (October 9, 1939).[60] Shortly thereafter, he joined the *Asociación argentina para el progreso de las ciencias*, which charged him with the task of carrying out a survey on 'what should be done for the progress of science in Argentina', with special reference to facilities for mathematical studies.[61]

Appointed a fellow of the American Mathematical Society in April 1942,[62] Terracini did not miss any favorable opportunities to promote wide-ranging cultural projects and expand partnerships with his foreign colleagues in a time when international relationships were boycotted. He attracted talented students, identified potential mathematics incubators and took part in research enterprises, challenges of the moment notwithstanding. For example, by taking advantage of the meetings

[58] See OVP, *AT*: Terracini to Veblen, Jan. 26, 1943; Veblen to Terracini, Feb. 9, 1943; *AEA, AT*: Terracini to Einstein, Oct. 21, 1941; Archives de l'Académie des Sciences, Paris, Fonds Élie Cartan: Terracini to Cartan, Jan. 6, 1946. Thanks to Fubini, the second volume of *Revista* (1941, p. 5–11) would include a paper by A. Einstein, *Demostración de la no existencia de campos gravitacionales sin singularidades de masa total no nula*. Einstein personally asked Terracini and Fubini to translate his work into Spanish, because he did not want to publish in the language of the Reich.

[59] Striking evidence of this fact derives from the study of the geographical distribution of 9000 offprints constituting Terracini's personal library. Cf. Luciano, and Scalambro 2020.

[60] Terracini would be elected *socio activo* on December 12, 1940.

[61] Terracini 1942b.

[62] Ayres 1942, p. 499.

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with G. D. Birkhoff and M. H. Stone, who visited Tucumán in autumn of 1942, he highlighted the difficulties of those scholars who, living far from study centers and libraries, had to depend on the help of colleagues and friends. Hence, the proposal (unfortunately aborted due to the war) to establish a central committee for bibliographical information in mathematics and physics under the aegis of the American Mathematical Society.[63]

Despite the important recognition he obtained, the years between 1940 and 1943 were very painful for Terracini, "years of anxious search for news, through radio and newspapers, with their sirens and wall journals, in the persistent longing that Fascism and Nazism would collapse".[64] Pessimism about the war and horror at the massacres of Jews across Europe – information about which, albeit fragmentary, began to filter in – were permanent concerns for all the exiles. So, for example, Terracini was shocked and grieved in the autumn of 1941 upon receiving a postcard from L. Berwald in the ghetto of Lodz, a note in which his colleague and friend told him that:

> he knew he was going to be deported - nor could I say today if he understood the euphemistic use of this verb - and pleaded for a call to Tucumán. Perhaps never as at that moment did I feel the grief of my impotence: I could only report the request to some friends, who unfortunately immediately came to the same conclusion: the impossibility, despite the best intentions, of any attempt to save Berwald. […] And a greater sorrow stemmed from the fact that he felt so disoriented, that in his postcard he added: «I profess evangelical religion».[65]

In summer of 1944, after a prolonged isolation, thanks to American Jewish rescue groups, the Terracinis managed to re-establish communications with their relatives in Italy and, in particular, with Aldo Sacerdote, Alessandro's brother-in-law. The five collective letters they sent him clearly reveal how they were filled with apprehension in their observation of the events of war, their anxiety for the fate of friends deported by the Nazi rogues (*canaglie*), and even a certain kind of remorse for living under such better conditions compared to those who had remained in Italy.[66]

In June 1943, meanwhile, a revolutionary *coup d'etat* led to the president of Argentina, General P. P. Ramírez, being succeeded by E. J. Farrell (February 1944) and J. D. Perón (October 1945-February 1946). Terracini did not suffer any

[63]Terracini 1942a.

[64]Terracini 1989, p. 349: '*años de ansiosa búsqueda de noticias dadas por la radio y los periódicos, con sus sirenas y sus pizarrones, siempre con el anhelo persistente de que el fascismo y el nazismo se derrumbaran*'.

[65]Terracini 1968, p. 139: '*diceva di aver saputo che stava per essere deportato – né oggi saprei dire se egli si rendeva conto dell'uso eufemistico di questo verbo – e supplicava per avere una chiamata a Tucumán. Mai forse come in quel momento sentii l'angoscia della mia impotenza: non ho potuto che riferirne ad alcuni amici, che purtroppo giunsero subito alla conclusione dell'impossibilità, nonostante le migliori intenzioni, di ogni tentativo per salvare il Berwald.* […] *E una maggiore tristezza derivava dal fatto che egli si sentiva così poco parte in causa, che nella sua cartolina mi aveva aggiunto: «Ich bin evangelischer Religion»*'.

[66]ATCET: Terracinis to Sacerdote, Aug. 6, 1944, Sep. 2, 1944, Oct. 13, 1944, Jan. 27, 1945 and Feb. 1, 1945.

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persecution by the Peronists but, fearful of losing his dignity and individual freedom again, he turned to the colleagues who had helped him in 1938. Once more, Veblen, Snyder, Einstein, J. von Neumann, and H. Weyl tried to find him a job, even if only temporary, in the United States, Uruguay or Peru.[67] Despite the support of five institutions (the Institute for Advanced Study, the Guggenheim, Rockefeller and Carnegie foundations, and the Pan American Union), the search was not successful; thankfully, in the meantime liberation day finally came for Italy.

The bittersweet return to 'the Italy of the stunning amnesty'

The racial laws were repealed by the allied military government in 1944.[68] With the end of the war, and with the news of the reintegration of academics, reported by the newspaper *Italia Libre*, Terracini found himself faced with 'el dilema de la vuelta'. It is likely that he had very mixed feelings about this. On the one hand, there was the utmost gratitude towards the country that had hosted him with affection and generosity, "never made him feel a stranger"[69] and gave him the highest honors, including the presidency of the *Union Matemática Argentina* (1945–47).[70] On the other hand, the argument of a potential "affective and ideological recovery" played in favor of returning, since Terracini, like many other refugees, was convinced that "between Italy and Fascism it was possible to distinguish; between Germany and Nazis, not".[71]

Finally, his doubts having dissipated through a series of friendly exchanges of opinion with E. Persico and Castelnuovo, at the beginning of 1946, Terracini started preparations for professional rehabilitation. Apparently unaware of the 'betrayal of the clerks' that had occurred in 1938, and without knowing that many had been soiled by the 'crime of prostitution of science',[72] he re-established relations with M. Picone, Bompiani, Berzolari and Severi, who included his name in the list of scientists and intellectuals whose presence in Italy was considered particularly urgent for the cultural reconstruction of the country.[73] The Turin Faculty of sciences, in its turn, recommended that the government speed up the return of Terracini, "a teacher of high value, an exemplary citizen, beloved by all", allocating funds to finance his trip.[74]

[67]See *AEA, AT*: Terracini to Einstein, Aug. 6, 1944; OVP, *AT*: Terracini to Snyder, Aug. 6, 1944; Snyder to Veblen, Aug. 22, 1944; Snyder to Terracini, August 1944; von Neumann to Snyder, Aug. 26, 1944; Snyder to Veblen, Aug. 28, 1944; Snyder to von Neumann, Aug. 30. 1944; Veblen to Snyder, Nov. 7, 1944.

[68]Guerraggio, and Nastasi 2018.

[69]ABTT: typewritten document *La scuola in Argentina*, Turin, Apr. 4, 1948, p. 1: '*non mi ha mai fatto sentire straniero*'.

[70]During his term, Terracini set the by-laws of the Union and convened the *Primeras Jornadas Matemáticas Argentinas*, which greatly contributed to the cultivation of a national spirit within the Argentinian mathematical community. Cf. ABTT: typewritten text of the keynote lecture delivered at the *Primeras Jornadas Matemáticas Argentinas*, July 1945, fols. 1–3 and Santaló 2001.

[71]Terracini 1989, p. 363: '*recuperación afectiva e ideológica*'; '*entre Italia y fascismo era posible distinguir; entre Alemania y nazismo, no*'.

[72]This assertion is taken from Colonnetti 1944, in Colonnetti 1973, pp. 53–54.

[73]ABTT: Terracini to Picone, Jul. 15, 1946.

[74]ASUT, personal dossier of Alessandro Terracini: University of Turin to Terracini, Feb. 1, 1946, and excerpts from the meeting of the full professors of the Faculty of Sciences, Nov. 14, 1945: '*docente di tanto valore, cittadino esemplare, da tutti benvoluto*'.

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The moment of repatriation finally arrived in 1948. Preceded by his wife Giulia and their children, Cesare, Lore and Benedetto, Terracini left Argentina in February after finishing the teaching semester, comforted by the feeling "of having carried out his academic responsibilities and duties quite well, and thus having contributed to a good evaluation of the work accomplished by Italians abroad",[75] but, at the same time, bitterly disappointed about "the astonishing amnesty that put back into circulation common delinquents and political criminals, including Jew-raiders and torturers, with the only exception being those whose tortures had been particularly heinous (sic)".[76]

At his departure students and colleagues suffered the feeling of a 'great loss'.[77] Terracini, however, made certain to maintain connections with his host land. For some ten years, he continued to edit the *Revista* remotely, by suggesting articles, mentoring early career authors, etc. Furthermore, the correspondence with Herrera, Cernuschi and many others clearly reveal the tangible legacy he left with his sojourn in the Argentine Republic.[78] Many of these affectionate protégés, some of whom became colleagues and friends in the course of time, inherited Terracini's ideas and research projects, both in differential projective geometry and in mathematics education. Several of his former alumni would go on to sit on the honor committee for the publication of his selected works and ovesee the Spanish edition of the volume *Ricordi di un matematico. Un sessantennio di vita universitaria*.[79]

Final remarks

Terracini's experience in Argentina must be framed within a tragic collective story of persecution and exodus. Again, litotes is the rhetorical figure that best allows us to characterize it. Terracini's departure was not an escape, because, when he decided to leave Italy, nobody could have imagined that deprivation of civil and political rights would foreshadow extermination. It was not a *dispatrio*, because he continued to consider himself Italian and never broke the cultural, linguistic, and emotional ties with his motherland, not even in the darkest years of the world war. It was not a political emigration in the strict sense of the term. In fact, Terracini did not flee from Italy because of political commitment or convictions, nor did he participate in the anti-fascist groups that were active in Argentina. His was a choice

[75]Terracini 1968, p. 152: '*coscienza di avere compiuto abbastanza bene il suo dovere di professore, e di avere così contribuito a una favorevole valutazione del lavoro compiuto dagli italiani in Sud America*'.

[76]Archivio Museo di Fisica, Roma, Fondo Persico: Persico to Terracini, Aug. 7, 1946: '*la sbalorditiva amnistia che ha rimesso in circolazione delinquenti comuni e politici, tra cui rastrellatori e torturatori, eccetto quelli le cui torture erano state particolarmente efferate*'.

[77]*Evolución de las ciencias en la República Argentina …* 1979, p. 203: *'experimentaron la penosa impresíon de que algo muy de ellos les era quitado'*.

[78]Cf. for example, in Terracini's papers kept in Turin: F. Herrera to Terracini, Feb. 5, 1948, Mar. 14, 1948, Mar. 18, 1948, Mar. 31, 1948, Aug. 20, 1948, Nov. 2, 1948, Dec. 1, 1948, Apr. 20. 1948; May 18, 1948, Jun. 6, 1948; Jul. 1, 1948, Apr. 20, 1952; F. Cernuschi to Terracini, Jan. 3, 1948, G. Garcia to Terracini, Jan. 15, 1948; R. Mondolfo to Terracini, Apr. 16, 1948; L. Romaña to Terracini, Apr. 19, 1948; F. Würschmidt to Terracini, Oct. 25, 1948, etc.

[79]de D'Angelo, and Herrera 1994.

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of life, carefully meditated, shared by his wife and essentially dictated by two factors: the desire to carve out a corner of intellectual survival and the need to ensure a future for his children. An exile, therefore, but a voluntary one.

Emigration could have represented an interruption in Terracini's biography, but instead it facilitated a new start, a turning point in his scientific career, insofar as it entailed the outset of new research lines (didactics, epistemology, high dissemination). If evoking a cultural bilingualism is, perhaps, excessive, it is not like speaking of a "happy encounter between openings, ferments, local fervors and available European energies".[80] Terracini felt he had received a lot from the Argentinian milieu: hospitality, affection, but also cultural stimuli. On the other hand, it was a great fortune for this country to benefit from the scientific, pedagogical and organizational talent of a scholar who highly honored his chair in Tucumán and helped to lead the *Universidad Nacional* in the international arena of mathematical research.

If it is true that every story is a story about people, Terracini's in Argentina is a small-scale experience that deserves to be told, both for its own explicative virtue and because it crosses with macro-history and underlies events and aspects of great relevance. Its historical reconstruction does not endorse *amarcord*. On the contrary, it provides the impact that racial persecutions had on both the Italian and Argentine cultural fabrics and implies identification of the distinctive features of the Jewish mathematical diaspora from Fascist Italy, in many aspects different from that of Nazi Germany. In particular, in analysing Terracini's activity during exile, new elements have emerged that contribute to defining the dynamics of promotion abroad of some exquisitely Italian traditions of thought, such as algebraic geometry and, to a lesser extent, Peanian logic. The network of interactions that arose among national mathematical 'schools', forced into the diaspora for political or racial reasons, turned out to be a factor that was far from negligible in the construction of new architectures of collaboration and in the configuration of new scientific communities in some peripheral areas of South America.[81] As a by-product, a new intriguing chapter in the history of circulation, appropriation and cross-contamination of mathematical knowledge can be written.

[80]Terracini 1989, p. 360: '*encuentro feliz entre aperturas, fermentos, fervores locales y energías europeas disponibles*'.

[81]Of course, I do not mean to imply that mathematical life started in Argentina with the arrival of Terracini. Suffice to mention, in this regard, the name of J. Rey Pastor. Conversely, I suggest that, by studying Terracini's activity in Tucumán, we can see that the spread of Italian mathematics was not limited to Buenos Aires, but also touched 'marginal' towns: Tucumán first, but also Rosario, Santa Fé, and Cordoba, in the northwest of the country.

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