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Abstract	<p>The racial laws of 1938, which determined, for Italian Jews, the loss of civil and political rights and their complete banishment from scientific and academic arenas, deeply impacted Italian mathematics, which abruptly lost outstanding figures like Levi-Civita, Volterra, Castelnuovo, Enriques, and many others. Their dismissal triggered a series of institutional, epistemic and social changes in culture and scholarship. The Jewish intellectual diaspora is among them. In this paper, after providing an overview of the phenomenon of Jewish mathematical emigration from fascist Italy after 1938, we will focus on the biographical and professional experience of Terracini, who succeeded in reconstructing his life and scientific career in Argentina, where he left a substantial and long-term legacy for an entire generation of young mathematicians (Luis Santalò, Félix Herrera, Mischa Cotlar, ...).</p>
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The Jewish Intellectual Diaspora and the Circulation of Mathematics: Alessandro Terracini in Argentina (1939–1948)

Erika Luciano

Abstract

The racial laws of 1938, which determined, for Italian Jews, the loss of civil and political rights and their complete banishment from scientific and academic arenas, deeply impacted Italian mathematics, which abruptly lost outstanding figures like Levi-Civita, Volterra, Castelnuovo, Enriques, and many others. Their dismissal triggered a series of institutional, epistemic and social changes in culture and scholarship. The Jewish intellectual diaspora is among them. In this paper, after providing an overview of the phenomenon of Jewish mathematical emigration from fascist Italy after 1938, we will focus on the biographical and professional experience of Terracini, who succeeded in reconstructing his life and scientific career in Argentina, where he left a substantial and long-term legacy for an entire generation of young mathematicians (Luis Santalò, Félix Herrera, Mischa Cotlar, ...).

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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- 34 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.
- 35 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.
- 36 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.
- 37 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*

38

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

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

53 This complete upheaval in the ruling academic staff had widespread aftermath in
54 regard to the local research traditions and affected the policies of promotions and
55 displacements in and from other institutions. The desire of the Fascist authorities to
56 show that the Jewish contribution to Italian mathematics had been irrelevant⁴ was
57 instrumental in increasing the speed and brutality of the turnover.

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

¹Numerical data are derived from Capristo 2002; Capristo, and Fabre 2018.

²Signori 2009.

³Fabre 1998.

⁴See L. Berzolari to G. Vacca, Dec. 14, 1938, in Nastasi, and Scimone 1995, pp. 11–12.



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. Fantappiè, 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

⁵Ash 1996, 2008.

⁶Terracini 1989, p. 337: '*uno spazio para sopravvivir intelctualmente*'.

⁷Israel, and Nastasi 1998; Israel 2010.

⁸Severi 1941, p. 137: '*antiche tradizioni orientali e massoniche di cui gli israeliti, esponenti dell'internazionalismo, avevano riempito la scienza italiana*'.

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

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

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

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

120 Dismay arose for three main reasons: the extent of the discriminatory decrees;
121 the fact that children had also been affected; the silence and indifference of civil
122 society, which the victims of the purge would remember for the rest of their lives.
123 Bewilderment was particularly accentuated in towns like Turin, where, as early as
124 1938, demonstrations of anti-Semitism had been “but a small thing”¹¹ and where no
125 one could imagine seeing the walls of central streets covered with proscription lists
126 of Jews, together with murals like ‘Death to Judas! We don’t want the Jews sent to
127 the concentration camps but pinned to the wall with the flamethrowers’.¹²

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

⁹Archivio 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’onnipotente 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*’.

¹⁰A. 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*’.

¹¹Terracini 1968, p. 3: ‘*ben poca cosa*’.

¹²Artom 1940–41, in Treves 1954, pp. 175–176: ‘*Morte a Giuda! Non vogliamo gli Ebrei in campo di concentramento, ma bensì al muro coi lanciati fiamme*’.



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

142 Whilst Mussolini declared that Italy would distinguish itself more by its indul-
143 gence than by rigor, bureaucracy proceeded immediately and efficiently with the
144 execution of the purge measures. Terracini was relieved of the chair of analytical
145 geometry starting on September 29 and November 11, respectively. On October 21,
146 he was expelled from the National Union of Italian Officers on Leave; on November
147 10, he was purged from the Academy of Sciences of Turin and the Italian Math-
148 ematical Union.

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

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

¹³Treves 1990, p. 28.

¹⁴Luciano 2018.

¹⁵Luciano 2017, pp. 196–199.



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

190 Terracini did not confine himself to playing an advisory role, but rather, at the
191 friendly insistence of M. Falco and M. Tedeschi, fully embraced the idea of creating
192 an advanced study plan, aimed at “ensuring a university preparation” for those
193 young people who were prevented from enrolling at the University in the autumn of
194 1938. In doing so, he used his professional skills as far as the mathematical cur-
195 riculum was concerned, obtaining the collaboration of many colleagues (G. Fano,
196 G. Ascoli and B. Colombo) and personally collecting several rejected university
197 applicants from Piedmont and Lombardy. However, in the end, he left the project.

198 *Getting ready to flee: the last months in Turin*

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

¹⁶A. 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 professionale’.



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

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

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

¹⁷Tricomi *alias* Terracini 1940, p. VII: ‘*minacciano di riapparire a ogni momento*’.

¹⁸Tricomi 1967, p. 66: ‘*la trattazione di alcune cose era più elevata che nelle sue Lezioni per l’Università*’.

¹⁹In 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.

²⁰While 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.

²¹Santaló 1961, p. XXVII: ‘*en terreno virgen, pero ávido de producir*’.



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

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

257 By contrast, escaping Italy was not easy, and in order to flee the country, three
258 specific conditions needed to be met: suitably solid financial assets, the ability to
259 count on a network of international contacts, and possession of a certain mentality,
260 that is, the capacity to adapt to new contexts and the courage and the strength to
261 reinvent their own lives and careers abroad, typically in distant, random and
262 unknown settlements. Terracini was among the few who possessed these requisites.
263 First of all, he enjoyed adequate means of livelihood, having been paid off with a
264 decent pension after ten years of seniority as a full professor²⁵; secondly, he was a
265 cosmopolitan intellectual, who had been abroad several times; lastly, he could rely
266 on the support of top figures in those solidarity chains that had spontaneously been
267 created since 1933 in order to help Jewish intellectuals and scientists to escape from
268 Nazi-Fascist Europe. The international mathematical elite had, in fact, established
269 personal and professional relationships with the members of the Italian school of
270 algebraic geometry since the end of the 19th century. Such links had been preserved
271 over time thanks to the international congresses of mathematicians, and to trips and
272 study sojourns abroad, for example, those spent by V. Snyder and E. B. Stouffer in
273 Turin, by S. Lefschetz and O. Zariski in Rome, and conversely by G. Fano in
274 Aberystwith.²⁶

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

²²Signori 1983; Fanesi 1994.

²³Fubini, and Brown 2015.

²⁴Ministero dell'interno, Polizia politica, Materia, b. 219, *Ebrei italiani*, fascicolo 1, Turin, Jan. 15, 1939.

²⁵ATT: Decree of settlement of retirement pension by Terracini and determination of retiring allowances, Feb. 11, 1939 and Sep. 12, 1939.

²⁶Luciano, and Roero 2016.



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

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

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

302 These two agencies, whose scope was to coordinate and finance the recruitment
303 of scholars and teachers fleeing from Europe, served as vibrant scientific bridges
304 between fascist Italy, the UK and the United States. The *Society*, set up by W.
305 Beveridge, L. Szilard and E. Rutherford, relocated and integrated almost 800
306 scholars between 1933 and 1940 into the UK and the British colonial Empire.²⁹
307 Among those rescued was B. Segre, who was awarded a fellowship in Cambridge
308 and, successively, in London and Manchester. A group of British geometers, on
309 the initiative of J. G. Semple and W. D. Hodge, contributed to a fund and collected
310 £128 to secure a grant for the maintenance of Segre and his family until 1942. On
311 the other hand, the SPSL failed in its attempt to support Terracini, who applied for
312 two vacant chairs at the Universities of Aberdeen and Durham.³⁰ On the US front,

²⁷Siegmund-Schultze 2001.

²⁸Regrettably, 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.

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

³⁰See 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.



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

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

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

340 A combination of various factors underlies such failures and is particularly
341 informative for us as to the reasons why Terracini's applications were all rejected.
342 In the first place, all the Italian mathematicians who attempted to leave the country
343 were forced to exploit the loopholes of increasingly selective immigration policies.
344 Terracini, Fubini, and Segre, who 'played the American card' between 1939 and
345 1941, were the latecomers, so to speak, and were destined to beg for the crumbs of
346 an international scientific solidarity long since exhausted in favour of refugees from
347 the Third Reich. As Veblen explained to Terracini with strong skepticism, looking
348 for a position in the US or the UK in the autumn of 1938 signified facing ruthless
349 competition, in an intellectual market already bursting at the seams:

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

³¹Duggan, and Drury 1948.

³²See, for example, David Fubini and Laurie Fubini Jacobs' private archive: G. García to G. Fubini, Nov. 4, 1938 and Dec. 16, 1938.

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

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

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

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

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

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

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

³³OVP, AT: Veblen to Terracini, Oct 4, 1938.

³⁴OVP, BS: Zariski to Veblen, Nov. 3, 1938.

³⁵See, 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.

³⁶OVP, 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.



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

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

407 ***‘As a missionary would explain the gospel to cannibals’: research and teaching***

408 Interviews with Brazil and Peru had seemed to hold promise when a letter from A.
409 Guzmán, dean of the Engineering Faculty of Tucumán, reached Terracini on June 9,
410 1939, inviting him to occupy the chair of projective and descriptive geometry for
411 the degree program in architecture and that of higher mathematics within the
412 *Profesorado*. The proposal was accepted by Terracini with warm emotion: “I can’t
413 believe I will resume the life of teaching!”,³⁹ he wrote to Levi-Civita on the same day
414 that the call came in.

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

³⁷OVP, AT: subject file *Refugees*, Terracini A.

³⁸Bompiani 1970, p. 6: ‘*le pochissime possibilità che ancora intravede*’.

³⁹Terracini to Levi-Civita, 9 Jun. 1939, in Nastasi, and Tazzioli 2000, p. 403: ‘*non mi par vero di poter riprendere la vita dell’insegnamento!*’.

⁴⁰From 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.



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 líneas 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’.

⁴²Terracini 1968, pp. 123–124.

⁴³Terracini 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): “Tricomí had defined the “density” of a correspondence between points of a space S_3 and planes of



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

472 The second essay relied on the contents of two notes presented by Terracini in
473 1937 and 1939, respectively.⁴⁵ Submitted for publication in English to the *Annals*
474 *of Mathematics* in the winter of 1938–39, the article finally appeared in Spanish as a
475 monographic issue of the *Unión Matemática Argentina*. In this paper, chiefly
476 dedicated to the links between the geometry of planar webs and the projective
477 differential geometry of surfaces, Terracini responded to a question asked by
478 W. Blaschke and G. Bol in their *Geometrie der Gewebe* (Berlin: Springer, 1938).
479 Terracini obtained a characterization of Segre's 5-webs as solutions to a certain
480 non-linear differential system. Under additional simplifying hypotheses, he suc-
481 ceeded in integrating the resulting system explicitly.

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

486 However, Terracini not only returned to some of his previous studies, but also
487 managed to re-target his research activity so as to be in step with the new scientific
488 framework. In 1941, for example, appraising works by E. Kasner and J. De Cicco,
489 he inaugurated a new line of investigation into a particular type of ordinary
490 third-order differential equations and their integral line systems, which he called
491 equations and systems (F) and (G), some of which had arisen in the study of the
492 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".

⁴⁴Terracini 1936a; Terracini 1936b.

⁴⁵Terracini 1937; Terracini 1939.

⁴⁶Terracini 1941a.



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

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

506 In this regard, two of Terracini's courses held in Tucumán between 1939 and
507 1948 particularly stand out. The first, entitled *Metodología*, was a two-year teaching
508 course on the foundations of mathematics, aimed at students enrolled in the teachers
509 training program.⁴⁸ Drafted in Turin in the summer of 1939, and refined on board
510 the Augustus transatlantic that carried him and his family to Buenos Aires, it was a
511 lucid synthesis of the two currents of thought out of Turin that Terracini had had the
512 opportunity to compare: those of Segre and Peano. In the first part, by adopting as a
513 reference the series *Questioni riguardanti le Matematiche Elementari* (Bologna:
514 Zanichelli, 1924–1927) by F. Enriques, the axioms of elementary geometry were
515 dealt with in their technical, historical and methodological aspects. In the presenta-
516 tion Terracini often reported *verbatim*⁴⁹ the contents of the famous lectures
517 delivered by Segre at the teachers' training school in Turin, which he had attended
518 in 1910–11. In his university years, however, Terracini had also been trained by
519 Peano in infinitesimal analysis and, although distrustful of the capacity of a strictly
520 formal approach to mathematics, he had appraised the key assumptions of such a
521 procedure. Thus, in the second part of his lectures in methodology, he presented the
522 axioms of arithmetic on the basis of the *Formulaire de mathématiques* edited by the
523 Peanian group (Torino: Bocca, 1894–1908), highlighted the most recent debates on
524 meta-mathematical questions (consistence, independence, categoricity) and even
525 taught Argentinian students to read the Peanian logico-ideographic language.

526 Likewise, the course of *Matemáticas Superiores* held in 1943 took up the
527 subjects of Terracini's lectures on the theory of groups and topology delivered in
528 Turin in the years 1931–32 and 1935–36.⁵⁰ In proposing a first primer of

⁴⁷Togliatti 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'.

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

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

⁵⁰BSM, 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*).



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

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

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

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

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

561 In Terracini's case, it was not only through his teaching that he passed down the
562 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 la impresión que les produjo el alto nivel intelectual, la sapiencia y la lucidez de exposición de este gran Maestro'.

⁵²Herrera 2000, p. 106: 'Un mundo maravilloso se abrió ante mi intelecto. [...] Creo que 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'.



563 the ‘viejo mundo’ even more through the organization of public conferences and
564 radio broadcasts and through the creation of a supra-national mathematical
565 journal.⁵³

566 Among his various initiatives, it will suffice to remember the following few. In
567 September of 1941, Terracini held some meetings on *Origenes de algunos con-*
568 *ceptos geometricos* in Rosario, Universidad du Litoral, at Levi’s invitation.⁵⁴ These
569 conversations recapped the main contents of a series of lectures held in Turin in
570 1934 at the mathematical Seminar of the University and the Polytechnic of Turin,
571 subsequently published in *Periodico di Matematiche* [(4), 15, 1935: 1–21]. Shortly
572 thereafter, he returned the invitation by asking Levi to deliver, in Tucumán, a cycle
573 of seminars on mathematical logic.⁵⁵ These talks, informed by Terracini and Levi’s
574 previous common background at Turin University, provided some general insights
575 into the studies in the algebra of logic and propositional calculus carried out by the
576 Peanians between the late nineteenth and early twentieth centuries. Beyond their
577 intrinsic value (diminished by some misunderstandings and imprecisions⁵⁶), they
578 largely contributed to the dissemination in Latin America of Italian logic, insofar as
579 they made the basic principles of ideography comprehensible to a public that, in
580 most cases, was neither qualified to understand the demonstrations and methods
581 proposed in *Arithmetices Principia* or in the *Formulario* nor equipped with the
582 wherewithal to source these works. Levi’s *Correria en la logica* would be recol-
583 lected by Terracini as:

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

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

⁵³For example, in ABTT, the typewritten text of the radio podcast devoted to *Geometria descriptiva y su valor formativo* is preserved, 1942, fols. 1–5.

⁵⁴Terracini 1941b.

⁵⁵Levi 1942.

⁵⁶For instance, Levi’s idea of a proof is out of date; logic and metalogic levels are frequently confused.

⁵⁷Terracini 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’.



596 sciences and affiliated with the *Universidad Nacional*: the *Revista de matemáticas y*
597 *física teórica*. Less than a year after Terracini had settled in Tucumán, in December
598 1940, the first issue was published. Together with the *Publicaciones del Instituto de*
599 *Matemática* and the *Mathematicae Notae*, both edited by Levi, the *Revista* excel-
600 lently filled a gap in the South American scientific press. To avoid the risk of
601 making it a journal with only a local circulation, Terracini and the co-director F.
602 Cernuschi spared no effort. Terracini himself nourished the journal with a dozen
603 papers and reviews, obtaining the collaboration of Einstein, Veblen, P. Erdős, R.
604 Courant, L. Godeaux, and É. Cartan, and giving Levi-Civita, Enriques, Fubini,
605 Fano, G. Ascoli, G. Loria and other Italian colleagues silenced by racial laws the
606 opportunity to begin publishing again.⁵⁸ His entire family was busy with the pro-
607 gressive typing of manuscripts, translating texts, proofreading, etc. Awards were
608 not long in coming. Papers were submitted to the *Revista*'s editorial board from the
609 four corners of the world and, in turn, in his role as chief editor, Terracini built
610 himself a network of international contacts far larger than the one that he had
611 created before emigration.⁵⁹

612 *'Years of anxious search for news'*

613 For Terracini, emigration to Latin America, which had begun as a sort of exile
614 mourning the loss of his cultural roots and national identity, turned out to have a
615 truly professional twist. In a very short time, he achieved considerable influence and
616 established himself as one of the 'fathers' of mathematics in Latin America. He who
617 had been expelled from all Italian learned societies was coopted as a member of the
618 *Sociedad Científica Argentina* the day after his arrival in Buenos Aires (October 9,
619 1939).⁶⁰ Shortly thereafter, he joined the *Asociación argentina para el progreso de*
620 *las ciencias*, which charged him with the task of carrying out a survey on 'what
621 should be done for the progress of science in Argentina', with special reference to
622 facilities for mathematical studies.⁶¹

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

⁵⁸See 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.

⁵⁹Striking 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.

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

⁶¹Terracini 1942b.

⁶²Ayres 1942, p. 499.



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

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

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

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

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

⁶³Terracini 1942a.

⁶⁴Terracini 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*’.

⁶⁵Terracini 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»*’.

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

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

669 *The bittersweet return to ‘the Italy of the stunning amnesty’*

670 The racial laws were repealed by the allied military government in 1944.⁶⁸ With the
671 end of the war, and with the news of the reintegration of academics, reported by the
672 newspaper *Italia Libre*, Terracini found himself faced with ‘el dilema de la vuelta’. It
673 is likely that he had very mixed feelings about this. On the one hand, there was the
674 utmost gratitude towards the country that had hosted him with affection and gen-
675 erosity, “never made him feel a stranger”⁶⁹ and gave him the highest honors, including
676 the presidency of the *Union Matemática Argentina* (1945–47).⁷⁰ On the other hand,
677 the argument of a potential “affective and ideological recovery” played in favor of
678 returning, since Terracini, like many other refugees, was convinced that “between Italy
679 and Fascism it was possible to distinguish; between Germany and Nazis, not”.⁷¹

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

⁶⁷See 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.

⁶⁸Guerraggio, and Nastasi 2018.

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

⁷⁰During 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.

⁷¹Terracini 1989, p. 363: ‘recuperación afectiva e ideológica’; ‘entre Italia y fascismo era posible distinguir; entre Alemania y nazismo, no’.

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

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

⁷⁴ASUT, 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 benvenuto’.



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

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

710 *Final remarks*

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

⁷⁵Terracini 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*’.

⁷⁶Archivio 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 impresión de que algo muy de ellos les era quitado*’.

⁷⁸Cf. 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.

⁷⁹de D’Angelo, and Herrera 1994.



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

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

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

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

⁸¹Of 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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