

Giuseppe Levi

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When he was expelled from the University of Turin, Giuseppe Levi was 66 years old and had an exceptional productivity and scientific reputation. Abroad, they admired him as «the first histologist in Italy and among the first in the world». He immediately started looking for another place where he could continue his research, without losing sight of his Nobel-prize-worthy students.

Birth and training

He was born in Trieste on 14 October 1872 into a family of Ashkenazi Jews, followed two years later by his brother Cesare, who would become a well-known theater critic. His mother Emma Perugia, from Pisa, had married Michele Levi from Trieste, heir to a family of bankers. After the death of his father in 1886, the family moved to Florence, where three years later Giuseppe enrolled in the medical section of the Regio Istituto di studi superiori pratici e di perfezionamento [Royal Institute of higher education for practical and advanced studies]. During his university years he became friends with Filippo Bottazzi, Mario Carrara, Gino Galeotti and Amedeo Herlitzka. In Florence he also met Lidia, a medical student, whose father Carlo Tanzi was a lawyer engaged in politics and a friend of the socialist Filippo Turati and Anna Kuliscioff. He married Lidia in 1901; between 1901 and 1916 they had five children: Gino, Paola, Mario, Alberto and Natalia¹.

¹ Gino Levi Martinoli (1901-1996), technical director of Olivetti since 1932, CEO and general manager of Agip Nucleare in 1957. Paola Levi (1902-1984), first wife of the industrialist Adriano Olivetti, then partner of the writers Carlo Levi and Mario Tobino. Mario Levi (1905-1973), member of Giustizia e Libertà [Justice and Freedom], exile in France, where he established solid relationships with Andrea Caffi, Nicola Chiaromonte and Renzo Giua; he participated in the Resistance in France and worked for UNESCO after the war. Alberto Levi (1909-1969), physician, joined Justice and Freedom together with his friends Vittorio Foa and Leone Ginzburg; arrested in 1935 and sent to confinement in Lucania, he joined the Action Party during the war, and was secretary of the CGIL [Italian General Confederation of Labor] in the

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The formative years in Florence

After graduating under the guidance of the pathologist Alessandro Lustig in 1895, he was an assistant for two years until 1898 at the university psychiatric clinic in Florence annexed to the psychiatric hospital in the San Salvi area, both directed by the internationally renowned Eugenio Tanzi. After spending a year in Berlin at the Institute of the German biologist Oscar Hertwig, he returned in 1899 to the Institute in Florence as an aide to the anatomist Giulio Chiarugi,² who was politically involved in the democratic-socialist bloc. In 1903 he obtained the *libera docenza* [official certification needed to teach at the university level] in general human anatomy and continued to work in the Istituto di Studi Superiori³.

Career and reputation abroad

After more than twenty years he left Florence when, in the academic year 1909-10, he was appointed *professore straordinario* [professor on a three-year track for promotion to full] of human anatomy at the University of Sassari; later, from 1914 to 1919, he was at the University of Palermo. During the First World War, however, in 1916-17, he served on the front line as a volunteer military doctor with the rank of major in Alleghe, in the Dolomites. At 47 years old, in 1919, he arrived at the University of Turin, with a considerable record of publications and having traveled extensively: in India, Egypt,

Seventies. Natalia Ginzburg (1916-1991), wife of Leone Ginzburg, writer, elected parliamentarian for the PCI [Italian Communist Party] in 1983. On the Levis, see Carlo D'Amicis, Mirella Fulvi (eds.), *Conversando con Gino Martinoli*, Rome, Adriano Olivetti Foundation, 1991, and Natalia Ginzburg, *Family sayings*, London, Hogarth Pub., 1967; New York, Arcade Pub., 1989 (or. ed. *Lessico familiare*, Turin, Einaudi, 1965).

² Mayor of Florence in the two-year period 1909-10, supported by the democratic-socialist bloc, Giulio Chiarugi was dean of the School of Medicine until 1923-24; rector in 1924, he resigned after a year. On the arrival in Florence of psychiatry professor Eugenio Tanzi, uncle of Levi's wife, in those years, see Patrizia Guarnieri, *Matti in famiglia. Custodia domestica e manicomio nella Provincia di Firenze (1866-1938)*, «Studi Storici», 48, 2007, pp. 477-521.

³ Various information is taken from the undated CV that Levi himself sent in November 1938 to SPSL together with a very long list of his publications up to 1938, both in BLO, MS, SPSL, b. 359/1, f. «Levi Giuseppe», 1938-47. See also Ennio Pannese, *Levi Giuseppe*, in *Dizionario Biografico degli Italiani*, vol. 64, Rome, Istituto della Enciclopedia Italiana, 2005 <<http://www.treccani.it>>.

Germany, the Netherlands, the Caucasus, Norway and the Svalbard Islands, where he had gone to remove the cerebrospinal ganglia of a whale. During the twenty years of teaching and research in Turin until 1938, Levi's contribution to the field of histology and experimental cytology, with 220 publications, was internationally recognized as relevant and original. With the Rockefeller Foundation's funds awarded to the Institute that he directed, he was able to sustain the costs for in vitro cultures of nervous tissue⁴. The tissue culture method was first used in the United States in the 1920s by Ross Granville Harrison and Alexis Carrel; Levi was the first to introduce it to Italy, using it for his studies on nerve cells in collaboration with Herta Meyer - the young assistant of the German biologist Emil Fisher - who had moved to Turin after Hitler had come to power. Among the most brilliant researchers at Levi's school, the following ones already stood out: Tullio Terni, who, from Florence to Turin, had always followed him as his aide, Salvador Luria (Nobel prize for medicine in 1969), Renato Dulbecco (Nobel prize in 1975), Rita Levi-Montalcini (Nobel prize in 1986), Rodolfo Amprino, Cornelio Fazio, Luigi Bucciante, Sion Segre and Alberto Levi.

Antifascist and Jewish

Of socialist convictions, in 1925 he signed Benedetto Croce's Manifesto; in 1926 he hid Filippo Turati, who was fleeing to France, in his house with the complicity and help of Sandro Pertini, Carlo Rosselli, Ferruccio Parri and Adriano Olivetti, Levi's future son-in-law⁵. But in 1931, in order not to «destroy what he had built during his life»,⁶ he made the difficult decision to bow to the oath imposed by the regime, worrying about the «career of his

⁴ Claudio Pogliano, *Giuseppe Levi a Torino. Una scuola di metodo e di Nobel* <<https://brunelleschi.imss.fi.it>> (accessed 10 January 2019).

⁵ Adriano Olivetti, son of the industrialist Camillo Olivetti, will marry Paola Levi, Giuseppe Levi's second child.

⁶ Renato Dulbecco, *Scienza, vita e avventura. Un'autobiografia*, Milan, Sperling & Kupfer, 1989, cit. in Domenico Ribatti, *Il maestro dei Nobel*, Rome, Carocci, 2018, p. 17.

best students»,⁷ who welcomed his announcement with «a thunderous shower of applause»⁸. In the same year his name reached the run-off with that of Filippo De Filippi for the Mussolini prize of the Royal Academy of Italy. In a private document dated 19 April 1931, the Duce had proclaimed: «either De Filippi or nothing»⁹.

In 1934 his son Mario and his student Sion Segre were stopped at a checkpoint on the border with Switzerland for a check: the anti-fascist propaganda material they were carrying was discovered; Sion was arrested, while Mario managed to throw himself off the Ponte Tresa and, swimming to the border, he was rescued by the Swiss guards on a boat. The police, however, searched the Levi house and arrested the professor with his eldest son Gino, an engineer employed in the Olivetti company, the brother of Sion Segre, and Leone Ginzburg, a *libero docente* [certified professor] of Russian literature and Natalia Levi's future husband, who just that year had refused to swear the oath to the regime. After fifteen to twenty days Levi was released, but the fascist police kept a file open in his name until 1942.

His anti-fascist choices had repercussions also on the academic environment:

I was completely put aside, for the reasons you guess - he wrote to his son Mario, an exile in France -; but I don't really care, nobody can take away from me the consideration I enjoy abroad and this is the most important thing; I do not care about external manifestations. Tullio [Terni] was no stranger to this ostracism, due to exceeding zeal¹⁰.

With the implementation of the racial laws, Levi was expelled from the Italian academic societies and from the University of Turin. The Facoltà di Medicina e Chirurgia [School Medicine and Surgery], which also dismissed his friend Amedeo Herlitzka, assigned his course in human anatomy until the academic year 1939-40 to Luigi Bucciante who had the title of *aiuto* [aide] and who,

7 Andrea Grignolio, *Introduzione*, «Medicina nei secoli», 30, 1, 2018, pp. 9-14.

8 R. Dulbecco, *Scienza, vita e avventura*, cit., in D. Ribatti, *Il maestro dei Nobel*, cit., p. 17.

9 *Ibid.*, p. 19.

10 ACS, MI, DGPS, CPC, b. 2779, f. «Levi Mario», letter of Giuseppe Levi, 25 July 1936, cit. in Patrizia Gabrielli, *Col freddo nel cuore. Uomini e donne nell'emigrazione antifascista*, Rome, Donzelli, 2004, p. 169.

upon winning a *concorso* [a national contest to secure a state-funded teaching position in a given discipline], was appointed to a tenured professorship in this discipline. But the ministry of national education, «considering it more convenient to make the appointment by transferring a professor who already held the rank of full professor»,¹¹ with the ministerial decree of 9 October 1940 ordered the transfer *ex officio* of professor Ferdinando Rossi from the University of Bari where, in turn, Bucciante was sent.

Comments from abroad: a serious blow to Italy

The news that Giuseppe Levi had been expelled soon circulated in international academic circles. His name was immediately registered by ECADFS in New York, the SPSL in London, and the Comité français Pour l'Accueil et l'Organisation du Travail des Savants Étrangers. The European office of the Rockefeller Foundation sent Robert Lambert the news of the expulsion of Jewish professors from Italian universities, which had appeared in «Vita Universitaria» on 5 October 1938. Lambert in turn informed the Emergency Committee of New York, underlining how the loss of Giuseppe Levi, Bruno Rossi, Ugo Lombroso and others he knew would be «a tough blow to the biological sciences in Italy»¹². The secretary Miss Drury opened a personal file for each of the named professors, including Levi.

About a month earlier, the secretary of the Paris organization, at rue Pierre Curie 13, had begun taking action, urging also the Society for the Protection of Science and Learning in London, 6 Gordon Square: Levi is «one of the most illustrious experimental cytologists in the world», wrote Louis Rapkine, who knew him personally, on 15 November 1938 in a heartfelt letter of

11 ASUTo, f. «Ferdinando Rossi», letter of the rector Azzo Azzi to the dean of the School of medicine and surgery, 19 October 1940.

12 See NYPL, MAD, ECAFDS, b. 88, f. 17, «Levi Giuseppe», with Robert Lambert's letter to Drury, 28 November 1938, and the clipping from «Vita Universitaria», 5 October 1938.

recommendation¹³. Professor Levi was looking for work in France, Belgium or England. In France, not much could be done for him; Levi himself was about to leave for Liège to explore other possibilities; in Cambridge the director of the Strangeways Research Laboratory (formerly Cambridge Research Hospital) offered him the use of the laboratory, but could not give him a salary. Could, perhaps, the SPSL grant him funding?

«Too old? ...one of the best histologists in the world»

On 17 November 1938, the assistant secretary Miss Esther Simpson replied to the Parisian Comité asking in the meantime to have the professor fill out the German/English SPSL questionnaire. Levi completed the questionnaire in German and sent it with his letter, also written in German, on 23 November from Paris. At the same time, Simpson clarified the problem to the director of the Cambridge laboratory Honor B. Fell: it was difficult to provide funding for a 64-year-old professor (in fact, he was almost 67), unless they seriously intended to hire him.

But he was «the most important anatomist on the continent», she replied, «one of the most respected researchers in the world. It breaks my heart to think that his fine investigations could be interrupted in this way, and if you could do something for him you would effectively benefit biological research». Simpson at least promised to bring the request to the attention of the committee. Meanwhile, the SPSL asked for further references. Levi had listed twenty names of American and European colleagues (no Italian) in the space provided in the questionnaire. They thanked him from London and in early January 1939 contacted other trusted experts: the director of the Carlsbergfondets Biologiske Institut in Copenhagen, the chair of the Department of Biology at Yale University, the rector of the University of

¹³ The correspondence mentioned in the text is all in BLO, MS, SPSL, b. 359/1, f. «Levi Giuseppe», 1938-47; see especially L. Rapkine to Esther Simpson, 15 November 1938, E. Simpson to H.B. Fell, 25 November 1938, and Fell's reply, 28 November; see also E. Simpson to G. Levi, 25 November 1938, the requests for references from the SPSL are dated 5 and 6 January 1939.

Brussels. It turned out that everyone knew him well: Levi was «the best histologist in Italy and among the best ones in the world», replied Albert Dustin, of the Belgian pathological anatomy laboratory; the Danish Albert Fisher believed that given his exceptional reputation as a teacher and scientist he could quickly adapt to the academy outside Italy.

However, the SPSL committee decided not to fund him, as David C. Thomson communicated on 28 January to Fell. The long response of the American Ross G. Harrison came late, on 10 March 1939: he praised Levi not only for scientific excellence, but also for his «great courage in not abdicating his principles to comply with what was imposed from above...». He had known him since 1927 and «although he must be over 60 years old, I believe he has maintained his vigor and I think that with his extensive international experiences he can easily adapt to the academic life of another country»¹⁴. All the more so since he knew German and French very well, less so English.

A laboratory in Belgium

Levi did not wait for the decision from London. Thanks to the Francqui Foundation,¹⁵ he was accepted at the University of Liège, albeit with a temporary assignment, according to the information recorded in the SPSL file. In a letter from prison, Vittorio Foa, a friend of Alberto Levi's, commented: «I thought that Pomodoro was too old to find a place to settle: better this way: it seems he is less old than I thought»¹⁶. The professor worked with Maurice Chevremont, assistant to Jean Firket in the Institute of pathological anatomy; here he set up a cell culture laboratory, resuming the interrupted research and starting others on the muscular system. From time to time he compared notes with his assistant Rita Levi-Montalcini, who had

¹⁴ On National Research Council letterhead, Washington, letter from Ross G. Harrison to David K. Thomson, 25 February 1939, but postmarked 10 March, *ibid.*

¹⁵ A public benefit foundation to promote the development of higher education and scientific research in Belgium, based in Brussels.

¹⁶ Vittorio Foa, *Lettere dalla giovinezza*, cit. in P. Gabrielli, *Col freddo nel cuore*, cit., p. 177. Giuseppe Levi was nicknamed Pom (*Pomodoro* [tomato]).

also been expelled from the University of Turin and had arrived in Belgium, in Brussels, at the invitation of Professor Léon Laruelle. His wife Lidia, after a few months with him in Liège, returned to Turin, also to help his daughter Natalia, whose son Carlo was born in April 1939 and the other son Andrea exactly one year later.

In May 1940, when Germany invaded Belgium, Levi underestimated the danger and continued to attend the laboratory. Finally he left Liège and tried unsuccessfully for a sudden escape on an ambulance of the Red Cross. In Boulogne the Germans stopped the ambulance and not having understood that the man in the white overall was Jewish, they took him back to Liège where he remained for another year,¹⁷ without working in the Institute «so as not to endanger his own life and that of his friends»,¹⁸ with whom he used to meet secretly in a suburban cafe. He suffered hunger and loneliness, without being able to give news about himself to his family. Finally in August 1941 he returned to Italy, crossing Germany with any means he happened to find.

The return from Liège: displaced and hidden (in Florence, again)

In Turin Levi joined the research that Levi-Montalcini, also returning from Belgium, was conducting on chicken embryos in a small laboratory in her bedroom, to study the interaction between genetic and environmental factors in controlling the differentiation processes in the nervous system in the early stages of development.

In the fall of 1942, due to the bombing, they were forced to evacuate. Rita took refuge in the Asti countryside, Levi and his wife took refuge in Ivrea, where their firstborn Gino – who had changed his last name from Levi to Martinoli in 1938 – worked at the Olivetti company. In the days of the armistice, Lidia was in Florence, where she would remain, while Giuseppe

¹⁷ Natalia Ginzburg, *Family sayings*, cit. p. 134.

¹⁸ Rita Levi-Montalcini, *Elogio dell'imperfezione*, Milan, Baldini & Castoldi, 2018, p. 132. The English translation, *In praise of imperfection. My life and work*, New York, Basic Books, 1988, does not include this specific phrase.

moved from Ivrea to the countryside, to a friend's house, obtaining a false identity card with the surname Lovisatto.

The SPSL occasionally asked for updates on the Levi case, as well as on others whom they assisted, and received vague news in October 1942 and July 1944. They only knew that he was in Italy and said he was fine: «I'm sure he's doing research, whatever the conditions are», an English informant replied, who was not very well informed of the situation. In September 1945 their record placed him in Florence, on via Giotto 27, c/o Bertazzioni [?]¹⁹.

In reality Giuseppe Levi had been in Florence since the spring of 1944, when, warned about an impending raid in the Ivrea area, he had fled and had reached the Tuscan capital where his wife Lidia and daughter Natalia (who had lost her husband, Leone Ginzburg, in February) were staying, with her three children Carlo, Andrea and Alessandra. Under a false name, his son Alberto, a doctor, was also in Florence, in the Campo di Marte district, with his wife Miranda and their child Vittorio. His second daughter Paola, married to Adriano Olivetti, had a home on the hills of Fiesole. Since October 1943, the Levi-Montalcini sisters with their mother Adele had also lived in the center, in a room on Via Cavour 84. The teacher Levi resumed working with Rita on a new edition of his *Trattato di istologia* [Treatise on Histology], which he had published for the first time in 1927 and already revised in 1935.

The liberation of the city was proclaimed on 11 August 1944. On 13 August the CLN [National Liberation Committee] delegated Enrico Greppi to act as rector, in place of the fascist Mario Marsili Libelli, who was then referred to the commission for the purge²⁰. Starting on 16 August, Guido De Ruggiero, the Minister of Education recently appointed on the recommendation of the

¹⁹ Dr. A. Glucksmann to Miss H. Simpson, 27 July 27 1944, Cambridge; subsequent information appears to derive from a note by prof. Ruffini, dated September 1946, which referred to him as returning to teaching as an *ordinario* [full professor] of human anatomy at the University of Turin on 1 January 1944 (effective date of the provision for the reinstatement to service for economic purposes). The last note is dated 11 June 1947, in BLO, MS, SPSL, b. 359/1, f. «Levi Giuseppe», 1938-47.

²⁰ Daniela Giaconi, *L'epurazione dei docenti fascisti. Il caso degli economisti*, HAL, 2017 <<https://hal.archives-ouvertes.fr>> (accessed 24 January 2019).

Action Party, communicated to «Prof. Giuseppe Levi at Ditta Olivetti, via dei Servi, Florence»²¹ the reappointment to the role of university professor, according to the RDL n. 9 of 6 January 1944. The note was also copied to the rector of the University of Florence, and Levi was invited to immediately contact the staff office of that university for the opening of a temporary bank account; he would rejoin the University of Turin «when the current circumstances would allow it»²².

Reinstated at 73 years old

The ministerial decree for reinstatement as professor of general human anatomy is dated 13 November 1944, with retroactive effect. In July 1945, at the age of almost 73, Levi returned to service in Turin: the pro-rector Mario Allara, who had come to assist the rector Luigi Einaudi, worked to ensure that the Institute the professor previously directed would be given back to him. Ferdinando Rossi was forced to return his chair to him and was transferred to the University of Genoa; Rossi's transfer to Turin, which had taken place in 1940, was revoked under art. 17 of the DLL 5 April 1945 n. 238, because at the time, the Faculty of Medicine had not taken a vote.

Levi had a special treatment, certainly fully compliant with regulations and yet quite exceptional in comparison to many colleagues for whom, instead, the regulations were poorly applied and the institutional reception they received was not particularly good. He was about to retire now, but he did not spare himself until the end.

In July 1945 he also accepted the appointment by the allied military Government as president of the internal university Commission for the purge of professors associated with fascism²³. He was also called to be part of the

21 ASUTo, f. «Giuseppe Levi», letter of Minister G. De Ruggiero, undated.

22 Ibidem.

23 Together with the professors Gioele Solari, Giovanni Chevalley, Renato Einaudi and with the chief secretary of the University of Turin Filippo Edoardo Strumia; see ASUTo, Minutes of the meetings of the Faculty Senate from 30 April 1943 to 6 February 1946.

Purge Commission of the Accademia dei Lincei together with Benedetto Croce, who served as president, and among others, Gaetano De Sanctis and Luigi Einaudi. He retired on 1 November 1947 based on the legislation in force at the time. Although he was 75 years old, the University of Turin still assigned him the teaching of human anatomy for the academic year 1947-48, upon extraordinary authorization from the Ministry. After the war, the National Research Council called him to the direction of the Center for Studies on the Growth and Senescence of Organisms, at the Institute of Human Anatomy, where he was able to secure an appointment for Rita Levi-Montalcini, who had not been reinstated to her post.

In 1948 Levi agreed to run in the ranks of the Popular Front, the electoral coalition of communists and socialists. In 1950 he went to Yale University and travelled in the United States to visit some laboratories;²⁴ he was invited to São Paulo, Brazil, to preside over the histophysiology laboratory of the «Andrea and Virginia Matarazzo Foundation».

With a decree of the President of the Republic of 14 March 1952, he was appointed professor emeritus and with a decree of 2 June 1954, he received the benemerenti gold medal for education, culture and the arts. He received an honorary degree from the universities of Liège, Montevideo and Santiago de Chile; he was a member of twenty Italian and foreign academies.

In 1957 his wife Lidia died of a heart attack; shortly after, his left leg was amputated. He died in Turin of stomach cancer on 3 February 1965, at the age of 92.

In 1947, on the occasion of his 75th birthday, under the auspices of the Municipio [City Hall] of Turin, a committee wished to remind

the representatives of culture and the whole population of Turin [...] of the scientific work of prof. Levi, who contributed to affirming the prestige of the Italian biological sciences all over the world. The

²⁴ The first time he went by ship, on the Atlantic, leaving on 21 August 1950 from Genoa; the second by plane with TWA on 11 November 1952, always accompanied by his wife; see *Ellis Island Foundation, Passenger Search, ad nomen* <<https://www.libertyellisfoundation.org>> (accessed upon registration 25 January 2019).

Committee also wishes to highlight the splendid figure of G. Levi as an incorruptible anti-fascist militant, who was an example and warning to entire generations of intellectuals during the sad decades of suppression of the democratic freedoms²⁵.

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- *Delle alterazioni prodotte nel rene dal cloruro di sodio. Ricerche sperimentali*, «Lo Sperimentale», 49, 1896, pp. 1-16.
- *Su alcune particolarità di struttura del nucleo delle cellule nervose*, «Rivista di Patologia nervosa e mentale», 1, 1896, pp. 141-149.
- *Studi sulla grandezza delle cellule dei mammiferi*, «Archivio italiano di anatomia e embriologia», 5, 1906, pp. 291-358.
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- With Alberto Pepere and Gaetano Viale, *Fisiopatologia della vecchiaia*, Milan, Istituto Sieroterapico Milanese, 1933.

²⁵ ASUTo, f. «Giuseppe Levi», letter from prof. Giacomo Mottura to the rector Mario Allara and the councilor Aloisi, Turin City Hall, 10 November 1947.

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- With Rita Levi-Montalcini, *Correlazioni sullo sviluppo tra varie parti del sistema nervoso. Conseguenze della demolizione dell'abbozzo di un arto sui centri nervosi dell'embrione di pollo*, «Pontificia academia scientiarum. Commentationes», 8, 1944, pp. 527-568.
- *Centro di studi sull'accrescimento e sulla senescenza degli organismi*, «Ricerca scientifica e ricostruzione», 17, 1947, pp. 1-6.
- *L'opera scientifica di Tullio Terni*, «Monitore zoologico italiano», 56, 1947, pp. 1-4.
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