

# Forgotten mathematician Henry Lowig (1904–1995)

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Life story of Heinrich Löwig – Jindřich Löwig – Henry Lowig

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## LIFE STORY

### Heinrich Löwig – Jindřich Löwig – Henry Lowig

*Do not hold our nation's name sacred,  
This land in which we live.  
Our true homeland is only in our hearts,  
Where it cannot be struck or stolen.*

Ján Kollár (1793–1852)

This chapter describes the difficult life experiences and mathematical work of Henry Lowig (1904–1995), a long forgotten mathematician who came from the Czech lands and whose life story paralleled the evolution of the Czech nation during the 20th century. Henry Lowig initially devoted his time to differential and functional equations, linear algebra and functional analysis; later he primarily focused on modern algebra, specifically, lattice theory. He published over 20 articles and 40 reviews on these topics. However he never wrote any textbooks or monographs, he has no disciples or followers in the Czech Republic, and his professional work was written only in German and English. To add to this, he belonged to ethnic and religious minority groups.

#### Heinrich Löwig's family – parents and sister

Henry Lowig was born on 29 October 1904 at Královské Vinohrady, Prague. The name on his birth certificate is Jindřich František Josef Löwi. In his younger years he was mostly known by his German name Heinrich Franz Josef Löwig and, to his family, as Heinz. For this reason he is referred to as Heinrich Löwig in the first part of this chapter.

Löwig's birth certificate denotes him a Catholic of German nationality. His father was Heinrich Löwi (1874–1944), a professional engineer, and his mother was Katharina Löwi, née Chwoyka (1881–1962).<sup>1</sup>

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<sup>1</sup> See Birth Register VIN N10, Folder 349, Prague City Archives. There it states that Jindřich František Josef Löwi was born on 29 October 1904 at Building No. 194 Královské Vinohrady and was baptised on 3 December 1904 at the St. Ludmila Church by V. J. Horák. His godfather was Franz Bek, postal assistant, of Building No. 1120 Královské Vinohrady. We note that from 1905 to 1938 he used both the Czech and German versions of his name, i.e. Jindřich František Josef Löwig and Heinrich Franz Joseph Löwig respectively. He used the German version more often because he was largely involved in German cultural and intellectual circles. From 1938 to 1948 he only used the Czech version of his name Jindřich Löwig, because during that time his family claimed Czechoslovak or Czech nationality. After 1948 he used either the Czech or English versions of his name and from 1954 the English version Henry Francis Joseph Lowig.

His father Heinrich Löwi was born on 10 September 1874 at Eidlitz (today called Udlice), Building No. 287, in the district of Chomutov. His parents were Josef Löwi, a Jewish shopkeeper, and Flora (née Kohn) of Tuchorzic, who was the daughter of Abraham and Johanna Kohn.<sup>2</sup> Heinrich Löwi had four siblings Albert (?–1943), Berta (?–?), Marie (?–1944) and Anna (?–1944).<sup>3</sup> From 1884 to 1898 Heinrich Löwi studied chemistry fulltime at the German Technical University in Prague.<sup>4</sup> He was amongst the top students,<sup>5</sup> generally completing examinations with excellent grades. In 1897 he wrote his first state examination and in the following year the subsequent state examination, thereby completing his studies.<sup>6</sup> On 16 May 1904 Löwi gained employment as a public servant and was appointed *Poštovní stavební adjunkt* [Postal Construction Adjunct] at the Prague Postal Directorate.<sup>7</sup>

On 6 September 1904 just before his 30th birthday, Heinrich Löwi was christened, against his parents' wishes, at St. Ludmila Church at Královské Vinohrady, Prague.<sup>8</sup> In the same church on 12 September 1904, in spite of his parents' disapproval, he married Katharina Chwojka,<sup>9</sup> who was born on 7 April

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<sup>2</sup> See Birth Register VIN N10, Folder 310, Prague City Archives. Both Heinrich Löwi's parents were listed as Jewish. We note that from 1905 Heinrich Löwi signed his name Heinrich Löwig or Jindřich Löwig, depending on whether he was in a German or Czech context; from 1938 he always wrote Jindřich Löwig.

<sup>3</sup> All of his siblings except Berta died in concentration camps or perhaps committed suicide in the face of the fascist regime. This information was obtained from documents in private Lowig-Jackson family archives in Sydney.

<sup>4</sup> See F. Stark, W. Gintl, A. Grünwald: *Die k. k. Deutsche Technische Hochschule in Prag 1806–1906* [The Imperial German Technical University of Prague 1806–1906], Prague, 1906, p. 499. Also *Haupt-Katalog über die ordentlichen und ausserordentlichen Hörer der deutschen technischen Hochschule in Studienjahre 1895/96, 1896/97 a 1897/98* [Main Catalogue of Ordinary and Extraordinary Students at the German Technical University in Academic Years 1895/96, 1896/97 and 1897/98], Archive of the Czech Technical University in Prague. The 1894/95 catalogue of students was not preserved. We note that in the catalogues Löwi was listed as having German nationality and Jewish religion.

<sup>5</sup> In the academic year 1896/97 Löwi received a merit scholarship of 25 zlatý [Gulden]. See *Haupt-Katalog über die ordentlichen und ausserordentlichen Hörer der deutschen technischen Hochschule in Studienjahre 1896/97* [Main Catalogue of Ordinary and Extraordinary Students at the German Technical University in Academic Years 1896/97], Archive of the Czech Technical University in Prague.

<sup>6</sup> Full details of his first national examination are recorded in *Special-Protokolle über die erste Staats-Prüfung an der chem.-technischen Schule Juli 1878–79 – Juli 1897* [Special Protocols of the First State Examination in Chemistry, Technical University July 1878/79 – July 1897], No. I-256, Archive of the Czech Technical University in Prague. Löwi's examination is recorded in Protocol 253/433 on 25 February 1897. The record of his second national examination was not preserved.

<sup>7</sup> Edition No. 25823 issued by the Department of Commerce, 16 May 1904. See the card Heinrich Löwi (Heinrich Löwig) in the catalogue of the Prague City Archives.

<sup>8</sup> See Birth Register VIN N10, Folder 310, Prague City Archives. Karel Richter, high school teacher of 6 Havlicekplatz, Prague, was godfather and witness, and was represented at the ceremony by Antonín Planner, Sexton of Vinohrady. His baptism certificate has him as Jindřich Karel, with the baptism being performed by V. J. Horák with permission under Prague Archbishop's Ordinance No. 11518 on 3 September 1904.

<sup>9</sup> In some documents her first name is written as Katharina and in others as Kateřina

1881 in Scheles at Podbořany (today Žihle).<sup>10</sup> Katharina was the daughter of Václav Chwojka (born 3 March 1834), a tenant farmer of Building No. 56, Scheles, and Theresa (Tereza) née Lüftner on 10 April 1841.<sup>11</sup> On her father's side Katharina was Czech and on her mother's side German. She considered herself German and did not speak Czech very well.

On 29 October 1904 they had a son Heinrich and on 28 October 1906 they had a daughter Anna (1906–1987).<sup>12</sup>

On 17 March 1905 approval was given to Heinrich Löwi to change his surname to Löwig under the Imperial Bohemian Governorship Ordinance No. 48502. He had requested the name change when he became a Christian and it was endorsed by Permission No. 3692 of the Archbishop's Consistory on 21 March 1905. The name change applied to the whole family.

From 1904 to 1907 the family lived at Building No. 194 in Vinohrady, Prague. Then from 1907 to 1920 they lived in Liberec (in German: Reichenberg). After this first period in Liberec, the family moved quite often. They lived in Pardubice (1920–1930), then again in Liberec (1930–1938), and finally again in Prague from 1938.

Heinrich Löwig started out as an administrative officer at the Posts and Telegraphs Directorate in Prague and then from 1907 to 1920 held similar positions in Liberec. His first appointment was as *Bauadjunkt* [Construction Adjunct] in the *Telegraph Line Section*; next he was *Baukommissar* [Construction Super-

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and her maiden name appears as Chwojková, Chwojková, Chwojka, Chwoyková, Chwoyka, Chwoika, or Chwoiková. From 1938 to 1948 she wrote Kateřina Löwigová and after 1948 Katharina Lowig.

<sup>10</sup> See Marriage Register VIN O8, Folder 54, Prague City Archives. In the register it states that the marriage ceremony was performed by V. J. Horák; witnesses were Josef Chvojka of Scheles (born in Schlaggenwald, in Czech: Horní Slavkov) and Jan Chalupník, butcher, of Building No. 194, Královské Vinohrady. The bride and groom submitted proof of birth and baptism of the groom (issued 10 September 1884 according to Book X, p. 31), proof of birth and baptism of the bride (No. 191 issued in Scheles on 14 September 1903), a decree of the bride's age of majority issued by the Jistebnice District Court on 16 September 1903, No. IV, 378-996/7-II, a Certificate of Housing, and the banns issued by the Vinohrady Consistory on 4, 8 and 11 September 1904 and, from 8 September 1904 ex officio from Litoměřice, three copies of the 5 September 1904 Prague Consistory Permission No. 11828.

<sup>11</sup> Both Katharina's parents were Catholics. See Liberec residency card of the Löwig family, State District Archives Liberec. There it shows the birth date of her father and his name as Wenzel Chwoika. See also *Trauschein, Auszug aus der Trauungsmatrik des unterzeichneten röm.-katholischen Seelsorgeamtes* [Marriage Certificate, Extract from the Marriage Register of the Roman Catholic Pastoral Office], where it says that on 27 June 1865 in Scheles, Wenzel Chwoika, born at Przehorsch (in Czech: Přehoř), son of the late Johann Chwoiky born in Powiesen and the late Marie Anna née Tschischka (in German: Tschig) in Przehorsch, married Theresa (Tereza) Valentina Lüftner born in Scheles, daughter of Emanuel Lüftner, baker at Scheles, and Marie Anna née Prochaska in Scheles. All documents were tendered on 31 January 1939 to prove Katharina's Aryan origins; they are held in a private family archive of the Lowig-Jackson family in Sydney.

<sup>12</sup> See Birth Register VIN N11, Folder 340, No. 835, Prague City Archives. The christening was performed by Franz Škarda on 12 November 1906. Her godmother was Anna Baumgartl, homeowner at Karlsbad (in Czech: Karlovy Vary), represented by Betti Balle, wife of the town governor, of Building No. 171, Královské Vinohrady.

intendent] and then *Bauoberkommissar* [Senior Construction Superintendent] at the *Telegraph Construction Authority*. Later he was appointed *Baurat* [Construction Counsel].<sup>13</sup>

Later in 1938 his son Heinrich Löwig wrote about his father in German in an application to the Liberec Town Hall:

... *My father, Engineer Heinrich Löwig, was at that time initially Construction Superintendent, later Senior Construction Superintendent and finally Construction Counsel in the Telegraph Line Section (later the Telegraph Construction Office) in Reichenberg. His last domicile in Reichenberg was at Robert-Blum-Straße 13.*<sup>14</sup>

On 17 March 1920 Heinrich Löwig was transferred by the Ministry of Posts and Telegraphs from Liberec to Pardubice (decree No. 10496-P-1920).<sup>15</sup> Shortly after that he was appointed *Chief Technical Construction Counsel* at the Pardubice Posts and Telegraphs Directorate.<sup>16</sup> On 1 November 1930 Löwig retired<sup>17</sup> and the Löwigs returned to Liberec where they lived until 1938.<sup>18</sup>

We note that in 1920 Löwig obtained residency status in Pardubice, a step which was to be of great import to the lives of his wife and son during World War II.<sup>19</sup>

<sup>13</sup> After Liberec, the family moved often. From 1907 to 1920 they lived at 34 Kaiser Josef Street (Liberec Building Number 455/1, now Masaryk Street), 54 Friedländer Street (Liberec Building No. 683/1, now Frýdlantská Street), 15 Mühlfeld Street (Liberec Building No. 562/3, now Vaňurova Street) and 2 Mariengasse (Laurenziberk Building No. 369/1, now the corner house on Mariánská Street, Vavřincův vrch). See residency card of the Löwig family in Liberec Resident Register, State District Archives Liberec. We note that in Vaňurova Street the Löwigs lived in a modern, spacious two storey villa built in 1910, and then in Mariánská Street in the so-called “postal palace”, which stood on the square directly across from the Liberec theatre.

<sup>14</sup> See the younger Heinrich Löwig’s application for *Heimatsrecht* [residency status] in Liberec written on 10 December 1938 in Prague and addressed to the Liberec City Council. Collection AM Liberec, under signature 324/37, Carton No. 385, State District Archives in Liberec.

<sup>15</sup> See also Ordinance IV D 11367/24 shown in Heinrich Löwi’s (Heinrich Löwig’s) card in the catalogue of the City of Prague, Prague City Archives.

<sup>16</sup> See Decree No. 540-Pp-20 issued by the Post and Telegraphs Directorate in Prague on 1 June 1920, Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>17</sup> See Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice. He was pensioned under Ordinance No. 1513-Pp-Pres-30, issued by the Post and Telegraphs Head Office on 17 September 1930. For the sake of completeness we note that in 1922 the family briefly lived in Chrudim. See residency card of the Löwig family in Liberec Resident Register, State District Archives Liberec.

<sup>18</sup> The family first lived at 11 Robert Blum Street (Liberec Building No. 135/5, now Maršíkova Street), then at 13 Robert Blum Street (Liberec Building No. 289/5). Heinrich Löwig the elder officially left Liberec on 18 November 1938 (the entry about his change of residence was only written on 17 January 1939), Kateřina Löwigová only officially left on 14 April 1939. See residency cards of the Löwig family in the Liberec Resident Register, State District Archives Liberec.

<sup>19</sup> See Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice. See also Heinrich Löwi’s (Heinrich Löwig’s) card in the catalogue of the City of Prague, Prague City Archives.

It is of interest that Heinrich Löwig was an active member of the Liberec faction of the *Deutsche sozialdemokratische Arbeiterpartei* [German Social Democratic Workers Party]. During 1919 and 1920 he sat on a number of Municipal Council committees and boards overseeing the operations of municipal services and the management of city finances.<sup>20</sup> On 20 September 1919 he was elected to the Board of Trustees of the *Kuratorium des Gewerbemuseums* [Crafts Museum], a position he held until his move to Pardubice.<sup>21</sup> At a meeting of the City Council on 27 January 1920 he was appointed as a director of the *Gemeindesparkasse* [Community Savings Bank].<sup>22</sup> On 4 March 1920 he was also elected to the Municipal Board of the *Stadtgemeinde im Elektrischen Ueberlandwerke* [Overland Electrical Works].<sup>23</sup> He held this position only until the autumn of that year.<sup>24</sup> On 9 June 1920, on the recommendation of the Social Democratic Workers Party, he was elected to the city Industrial Board.<sup>25</sup> He accepted all these elections and nominations, regularly participating in the work of these boards and committees.<sup>26</sup>

### Heinrich Löwig's high school and university student years

Young Heinrich Löwig was first a pupil at the German primary school in Liberec. Then from 1915 to 1923 he attended the *Deutsche Staatsgymnasium in Reichenberg* [German State Grammar School in Liberec]. Initially an average student, from 1919 he began to excel and became one of the top students. On 19 June 1923 he matriculated with distinction, which qualified him to attend any institution of higher learning.<sup>27</sup> We note that because of his father's status

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<sup>20</sup> See Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>21</sup> Regarding his selection see *Amtserinnerung* [Official Notice] 25 October 1919. When he moved to Pardubice he was replaced by Social Democrat Emil Karl Berndt. Regarding the appointment of the new Board member see proposal No. 200/19/21 of 20. 10. 1920, Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>22</sup> See untitled record in Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>23</sup> After he moved to Pardubice, on 22 October 1920 the Social Democrat Alois Neurath was appointed in his place. See Record No. Gd 86/12/154, Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>24</sup> After he moved to Pardubice, on 22 October 1920 the Social Democrat Alois Neurath was appointed in his place. See Motion No. Gd 86/12/167, Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>25</sup> See Otto Hahn's Motion No. Gd 200/19/18 of 8 June 1920, Liberec City Archives Collection, Volume VI Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec.

<sup>26</sup> In documents held in Liberec City Archives Collection, VI. Volume Gd, Inv. No. 832, under signature 200/19, Carton No. 512, from 1919 to 1939, State District Archives Liberec, Löwig's name can only be found from 1919 to 1920. Information about his other political activities was not found.

<sup>27</sup> *Vierundvierzigster Jahres-Bericht des k. k. Staatsgymnasiums in Reichenberg für das Schuljahr 1915–1916* [Forty-fourth Annual Report of the Imperial State Grammar School in

and his good family background, he did not receive any scholarship funding. It is of interest that the records list him as an “external student” from Královské Vinohrady, Prague.

At the beginning of the 1923/24 academic year, Löwig enrolled at the Naturwissenschaftlichen Fakultät der Deutschen Universität in Prag [Faculty of Science of the German University in Prague]. He attended lectures in mathematics, physics, astronomy and chemistry. Because he was considering a teaching career, he also enrolled in courses in pedagogy, psychology, German language, literature, history, etc. Amongst his professors were Georg Alexander Pick (1859–1942), Ludwig Berwald (1883–1942), Arthur Winternitz (1893–1961), Karl Mack (1882–1943) and Karl Löwner (1893–1968) (all of whom lectured in mathematics), Reinhold Fürth (1893–1973), Paul Georg Funk (1886–1969) and Philipp Frank (1884–1966) (all of whom lectured in physics), Adalbert Prey (1873–1949) (astronomy) and Alfred Kirpal (1867–1943) (chemistry). Löwig attended up to 40 hours per week of lectures, seminars, tutorials and laboratories. In 1928 he was awarded a scholarship of about 700 crowns from the Bernard Bolzano Fund which was set up to support talented mathematics students.<sup>28</sup>

On 22 March 1927 Löwig applied to sit an examination to qualify for appointment as a high school mathematics and physics teacher. His application and fees paid were recorded in *Protokoll IV der k. k. deutschen Prüf. Kommission für das Lehramt an Mittelschulen 1914/1915 – 1926/1927* [Protocol IV of the Imperial German Examiners Commission for Teaching in Secondary Schools 1914/1915 – 1926/1927] under No. 36.<sup>29</sup> These records show that on 2 April 1927 Löwig was informed of a mathematics assignment topic (set by G. A. Pick) and a physics assignment topic (set by P. Frank). On 20 September 1927 Löwig requested an extension, resulting in the new deadline of 2 April 1928. He handed in the mathematics assignment on the 2 March and the physics assignment on the 8 March. Pick gave his assessment of the mathematics assignment on 17 March and Frank gave his on 5 April. Both evaluations were

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Liberec for school year 1915–1916], Liberec, 1916, p. 37, Forty-fifth ... 1916–1917, Liberec, 1917, p. 39, Forty-sixth ... 1919–1920, Liberec, 1920, p. 8, Forty-seventh ... 1920/21, Liberec, 1921, p. 10, Forty-eighth ... 1921/22, Liberec, 1922, p. 10, Forty-ninth ... 1922/23, Liberec, 1923, p. 8, Fiftieth ... 1923/24, Liberec, 1924, p. 5. See also Leaving Certificate issued 19 June 1923 at the State Grammar School in Liberec. Of interest is that, on 21 June 1923 a certificate was issued attesting that Heinrich Löwig also completed the matriculation examination in Czech Language with excellent results. Report cards are held in private family archive of the Lowig-Jackson family in Sydney. According to family memories the reason he took the additional Czech Language course was that he felt insufficiently challenged at high school. During his army service from 1928 to 1930 he learned to speak Czech fluently without an accent.

<sup>28</sup> See student catalogues, Faculty of Science, German University of Prague 1923/24 to 1927/28, Archive of Charles University. Also *Ordnung der Vorlesungen an der Deutschen Universität in Prag 1923, ..., 1928* [List of Lectures at the German University in Prague in 1923, ..., 1928]. See also Löwig’s course attendance records in his so-called *Meldungsbuch* issued in the name of Heinrich Löwig by the German University on 4 October 1923. The record is held in Lowig-Jackson private family archive, Sydney.

<sup>29</sup> The register is held in the Archive of Charles University.



very positive and on 6 April they recommended that Löwig's application should proceed. On 7 May Löwig wrote final examinations in both subjects and on 11 May underwent oral examinations. That same day he was granted approval to teach mathematics and physics in German language high schools.

The documentation also notes that on 23 May 1928, at the Prague parish of Olšany, Löwig left the Catholic Church and pronounced himself "without religion".<sup>30</sup>

The Charles University archival records of German language grammar school teacher examinations contain complete details of Löwig's examinations, including his application, fees, resume, and an inventory of all submitted documents that showed he completed all mandatory examinations and colloquia, as well as the documents themselves.<sup>31</sup>

From the autumn of 1927 Löwig worked towards his doctorate. On 6 December 1927 he handed in his doctoral thesis titled *Über periodische Differenzgleichungen* [On periodic functional equations], assessed on 12 December by G. A. Pick and L. Berwald, who recommended the continuation of assessment proceedings. On 1 February 1928 Löwig successfully completed the first (main) oral examination in mathematics before a panel consisting of G. A. Pick, P. Frank and L. Berwald. On 5 June 1928 he underwent a second (subsidiary) oral examination, this time in astronomy, before a panel consisting of A. Prey, A. Kirpal and A. Winternitz. At a graduation ceremony on 9 June 1928 Rector Karl Isidor Cori and Löwig's sponsor Ludwig Berwald conferred on Löwig a doctorate of natural sciences. His original doctoral thesis is not in the Archive of Charles University, though the archive does contain the protocol and details of assessment procedures.<sup>32</sup> A short extract of his doctoral thesis was published

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<sup>30</sup> See also Birth Register VIN N10, Folder 349, Prague City Archives.

<sup>31</sup> From documents relating to his mathematical approbation, it is evident that Löwig handed in as an assignment his doctoral thesis *Über periodische Differenzgleichungen* [On periodic functional equations], which had been positively evaluated by Pick and Berwald during his doctorate proceedings and which was why, on 16 March 1928, Pick recommended its adoption for teacher qualification assessment. He had already recommended this topic on 23 March 1927. On 13 March 1928 Pick set as the examination topic the work *Der Fundamentalsatz über die symmetrischen Funktionen der Wurzeln einer algebraischen Gleichungen* [The fundamental theorem on symmetric functions of roots of algebraic equations] and appended three longish questions. He was very satisfied with Löwig's written work and on 8 May he wrote "Very good" and added "The responses to all the questions are excellent in every respect". On 11 May, 1928 Pick determined the topics for the oral examination: *Partielle Differentialgleichungen. Vollständige Systeme. Berührungstransformationen* [Partial differential equations. Complete systems. Contact transformations]. Pick again assessed Löwig's performance in the oral examination as "Very good" and he added "The candidate, whose knowledge goes far beyond requirements, is focused on all relevant areas and shows clear understanding and presentation". We note that the Physics examination is recorded in similar detail. See the German Examination Commission's materials for teaching at grammar schools, Section H. Löwig, Archive of Charles University.

<sup>32</sup> See Register *Doktor-Protokoll*, item 318, p. 158, Faculty of Science, German University in Prague, Archive of Charles University. See also M. Výborná, J. Havránek, K. Kučera: *Disertace pražské university II*, Sbíрка pramenů a příruček k dějinám University Karlovy 3,



as *Über periodische Differenzgleichungen* [On periodic functional equations] [L1] in the journal *Lotos*.

### Heinrich Löwig's early pre-war career

From 1928 to 1930 Heinrich Löwig carried out his obligatory army service.<sup>33</sup> Later in 1972 he wrote in English about that period:

*After my first university graduation in June, 1928, I proceeded to fulfill my duty of presence in the Czechoslovak army: I served from October, 1928, till March, 1930. Later on, as a reservist of the Czechoslovak army, I served for two short periods ("cvičení ve zbrani") namely in 1931 and 1932. I served again at the mobilization in 1938.*<sup>34</sup>

Research in the Military Historical Archive in Prague found that, after many postponements, Löwig presented for army service on 1 October 1928 in the Cavalry Regiment No. 3 at Nové Zámky (now in the Slovak Republic). On 15 November 1928 he was transferred to the Infantry Regiment No. 25 at Lučenec (now in the Slovak Republic). On 29 March 1930 Löwig was released from the eighteen month full-time regular service with the rank of lance corporal. During 1931 and 1932 he participated in two prescribed army exercises; he was excused from another two. Later, on 25 September 1938 he was called to active service as part of the general mobilisation.

On 13 November 1930 Löwig was appointed *Hilfslehrer* [Assistant Teacher] at the *Deutsche Staatsrealgymnasium in Prag II* [German State Grammar School in Prague II] where he worked until 31 January 1931.<sup>35</sup> On 17 April 1931 he was

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Universita Karlova, SPN, Praha, 1965 [Prague university dissertations II, Collection of sources and guides to the history of Charles University 3, Charles University, SPN, Prague], 1965; information about Löwig's doctorate is on page 157, item 318.

<sup>33</sup> We note that on 19 March 1920, an Armed Forces Act was issued, covering conscription of citizens aged 20 to 50. The length of service was set at 14 months, though that was generally extended to 24 months. In 1927 an amendment to the Armed Forces Act was issued, stipulating registration by recruits at 17, conscription at 19, take up of duty at 20, and introducing delayed uptake for undergraduates and a range of relief options for family breadwinners and owners of farms, small and medium businesses. The length of service was 18 months and conscription took place twice a year. After completion of service, each male had to participate in a further four exercises for a total of 14 weeks over the following years.

<sup>34</sup> *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, Lowig-Jackson family private archive, Sydney. Information regarding army service was obtained from spoken comments and information recorded on the registration card of the Löwig family in the Liberec Resident Register, which states that Heinrich Löwig lived from 1 October 1928 to 27 April 1929 in Banská Bystrica, then until Spring 1930 in Košice. See registration cards of the Löwig family in the Liberec Resident Register, State District Archives Liberec. See also Lowig's letter of 4 October 1976 to Joseph John Hallein (1943–2005), first husband of daughter Ingrid, held in Lowig-Jackson private family archive in Sydney. In that letter Löwig stated that he served in the army for 18 months.

<sup>35</sup> See biographical details from 27 February 1935 provided by Heinrich Löwig in his application for habilitation, Habilitation Procedures Collection, Faculty of Science, German University in Prague, Archive of Charles University. See also *Zwölfter Jahresbericht der Deutschen Staats-Realgymnasiums in Prag II (mit humanistischen Abteilungen) über das*

appointed Assistant Teacher at the Deutsche Staatsgymnasium in Reichenberg [German State Grammar School in Liberec] where he was until 14 May 1931.<sup>36</sup>

On 1 May 1931 he was appointed *Wissenschaftliche Hilfskraft* [Graduate Teaching Assistant] at the *Mathematischen Institut der Deutschen Universität in Prag* [Mathematics Institute, Faculty of Science, German University in Prague]. He remained in this position until 31 August 1934, working primarily with his professor Ludwig Berwald.<sup>37</sup>

During that period Löwig dedicated himself intensely to mathematics, preparing his works for publication and also lecturing at the *Mathematisches Kränzchen in Prag* [Mathematics Circle in Prague] and at the *Deutsche physikalisch-mathematische Gesellschaft in Prag* [German Physics and Mathematics Society in Prague].<sup>38</sup>

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*Schuljahr 1930–31* [Twelfth Annual Report of the German State Grammar School in Prague II (with humanities departments) for the 1930–31 school year], Prague, 1931, p. 20. There it states: *Professorial candidate Dr. Heinrich Löwig, appointed as Graduate Teaching Assistant in Semester 1. (L.-S.-R.-Erl. v. 28 November 1930, Z. 1/B 572/9 – 146666 ai 30.)*

<sup>36</sup> See biographical details from 27 February 1935 provided by Heinrich Löwig in his application for habilitation, Habilitation Procedures Collection, Faculty of Science, German University in Prague, Archive of Charles University. See also *Siebenundfünfzigster Jahresbericht des Deutschen Staatsgymnasium in Reichenberg für das Schuljahr 1930/31* [Fifty-seventh Annual Report of the German State Grammar School in Liberec for the 1930/31 school year], Reichenberg, 1931, p. 41.

<sup>37</sup> See biographical details provided by Heinrich Löwig on 27 February 1935 in his application for habilitation, Faculty of Science, German University in Prague, Archive of Charles University.

<sup>38</sup> At meetings called *Mathematisches Kränzchen in Prag* [Mathematical Circle in Prague] he gave the following lectures: *Die Differentialgleichungen der Extremalen eines Mayerischen Problems in der Variationsrechnung als Gleichungen einer infinitesimal Berührungstransformation* [Differential equations of extremes of a Mayer Problem in the calculus of variations as equations of an infinitesimal contact transformation] (18 May 1928, 8 June 1928), *Lineare Differenzgleichung mit Koeffizienten von gemeinsamer Periode* [Linear functional equation with periodic coefficients] (7 October 1930), *Zur Theorie der nichtlinearen Differenzgleichungen* [On the theory of nonlinear functional equations] (21 October 1930), *Über das Summationsproblem* [About the summation problem] (13 October 1931), *Über die Exponentialfunktionen und den natürlichen Logarithmus von Matrizen* [On the exponential and natural logarithm of matrices] (8 April 1932), *Über die Anzahl der Leitgleichungen einer eingliedrigen Gruppe von Berührungstransformationen* [On the number of governing equations of a parametric group of contact transformations] (9 December 1932) and *Zur Theorie der metrischen Vektorräume* [On the theory of metric vector spaces] (10 to 17 March 1933). See *Jahresbericht der Deutschen Mathematiker-Vereinigung* [Annual Report of the German Association of Mathematicians] 38(1929), Volume 2, p. 84, 42(1931), Volume 2, pp. 133–134; 45(1935), Volume 2, p. 48. The mathematics lecture series he presented at *Deutsche physikalisch-mathematische Gesellschaft in Prag* [German Physics and Mathematics Society in Prague] was called *Komplexe euklidische Räume von beliebiger endlicher oder transfiniten Dimensionszahl* [Complex Euclidean spaces of any finite or transfinite dimensions] (13 to 27 April 1934). See *Jahresbericht der Deutschen Mathematiker-Vereinigung* [Annual Report of the German Association of Mathematicians] 45(1935), Volume 2, p. 49. For interest we add that attendees at the above weekly or fortnightly evenings and seminars were Czech and German mathematics and physics professors. Lecturers included for example E. Artin,

In the spring of 1934 Löwig assumedly requested an extension of his appointment as Graduate Teaching Assistant. In relation to this, a detailed investigation was carried out by the police to ascertain Löwig's political leanings and any activity in dissolved and banned German nationalist parties.<sup>39</sup> On 3 April 1934 Inspector František Vinš handed down the following determination written in Czech:

*Determination*

*Because during his domicile in Prague, the herein named has not participated in public political life, it has not been possible, even from reliable sources, to identify which political party he belongs to.*

*There is no evidence of political activity in the records and current file No. 151 748 ai 28. L-891 is blemish free.*

*František Vinš,  
Inspector*

Even though the detailed investigation found Löwig had never been politically active,<sup>40</sup> his university appointment as Graduate Teaching Assistant was not extended.

L. Berwald, R. Carnap, W. Frölich, P. G. Funk, W. Glaser, V. Jarník, E. Lammel, K. Löwner, L. W. Pollak, A. Rössler, K. Sitte, A. Winternitz.

<sup>39</sup> See materials stored under signature L 31/55 Löwig Jindřich, Carton No. 929, Collection PP 1931–1940, Police Directorate, Prague II – Headquarters 1931–1940, National Archives of the Czech Republic. The folder contains an application to the Land Office in Prague No. 268 z. r. Section 11 of 2 March 1934, in which stated:

*Prague, 2 March 1934*

*Prague – German University – technical tertiary education institution – Faculty of Science – Mathematics Department – Dr. Jindřich Löwig, other assignation scientific assistant.*

*Attachments 0*

*To Police Directorate in Prague.*

*I request an investigation and report on whether the above-mentioned, born on 29 October 1904 at Královské Vinohrady, resident in Pardubice from 4 April to 4 October 1933, was a member or adherent of any dissolved German parties.*

*For the President of the Land Ministry*

*Dr. Taške (signed by hand).*

<sup>40</sup> See 6 April 1934 letter of Police Directorate No. 5233 pr. ai 34 L/31/55 addressed to the Land Office in Prague, Carton No. 929, Collection PP 1931–1940, Police Directorate, Prague II – headquarters 1931–1940, National Archives of the Czech Republic. It stated:

*Presidential Despatch!*

*Prague – German University, technical tertiary educational institution, Faculty of Science – Mathematics Department – Dr. Jindřich Löwig, appointed scientific assistant. Carton No. 268 ai 34 Volume 11 of 2 March 1934.*

Throughout his time as Graduate Teaching Assistant, Löwig was intensely preoccupied with the solvability of linear and non-linear differential and functional equations with special coefficients (assumedly under the influence of Berwald and Pick).

From 1931 to 1933 he published two extensive works in the renowned international journal *Acta Mathematica* entitled *Lineare Differenzgleichungen mit Koeffizienten von gemeinsamer Periode* [Linear functional equations with periodic coefficients] [L2] and *Zur Theorie der nicht linearen Differenzgleichungen* [On the theory of nonlinear functional equations] [L3]. These were in the way of mathematical monographs and their content was praised in a review by the German mathematician Oscar Perron.<sup>41</sup> In the article entitled *Lösung der Aufgabe 97 von Anton E. Mayer aus dem Jahresberichte der D. M. V.* [Solution to Task 97 set by Anton E. Mayers in the Annual Report of the Geman Association of Mathematicians] [L4] he published an interesting and elegant solution to geometry problem No. 97 that was posed in the journal *Jahresbericht der Deutschen Mathematiker-Vereinigung* (40(1931), 46).<sup>42</sup> In the no less renowned journal *Mathematische Annalen*, he published a detailed analysis of the characteristics of first order partial differential equations, called *Bemerkung zu einem Satze von A. Kneser über die Charakteristiken einer partiellen Differentialgleichung erster Ordnung* [Comment on a theorem of A. Kneser on the characteristics of first order partial differential equations] [L5], which was praised by A. Hammerstein of Kiel.<sup>43</sup>

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*To the Land Office in Prague. In relation to the above request we report that it was not possible to definitively find out via trusted channels to which political party he belonged from 4 April 1933 to 4 October 1933. It was not possible to find whether during that time he was a member or adherent of the dissolved National Socialist German Workers Party or the banned German Nationalist Party.*

*Z. O. 6 April, 1934*

<sup>41</sup> See review journal *Jahrbuch über die Fortschritte der Mathematik* JFM57.0535.01, 57(1931), p. 535, O. Perron (München), respectively JFM57.0536.01, 57(1931), p. 536, O. Perron (München), review journal *Zentralblatt für Mathematik und ihre Grenzgebiete* ZBL0002.39701, Volume 2, p. 397, Lüneburg (Göttingen), respectively ZBL0003.05804, Volume 3, pp. 58–59, C. R. Adams (Providence). Oscar Perron (1880–1975) was a German mathematician, concerned with mathematical analytics and algebra, creator of the so-called Perron integral.

<sup>42</sup> Anton E. Mayer: *Aufgabe 97* [Task 97], *Jahresberichte der Deutschen Mathematiker-Vereinigung* [Annual Report of the German Association of Mathematicians] 42(1933), pp. 19–21.

<sup>43</sup> Adolf Hammerstein (1888–1941) was a German mathematician, concerned with number theory, differential equations and theory of nonlinear integral equations (see Hammerstein *Integralgleichung*). As is evident from the title, this is a short note in which Löwig built on the work of Adolf Knesera (*Partielle Differentialgleichungen erster Ordnung und Mayersche Probleme der Variationsrechnung*, *Jahresbericht der Deutschen Mathematiker-Vereinigung* 24(1915), pp. 123–135) concerning the relationship between the so-called Mayer Problem (the calculus of variations) and the search for certain characteristic curves of partial differential equations of first order. Kneser's theorem is reformulated in [L5] using Lie Theory. Reference is made to the work S. Lie: *Begründung einer Invariantentheorie der Berührungs-*

On 1 August 1934 Löwig was appointed *Aspirant der Professur* [Interim Mathematics and Physics Teacher] at the *Deutschen Staatsrealgymnasium in Leitmeritz* [German State Grammar School in Litoměřice]. He worked there until 31 September 1935, teaching junior high school classes in mathematics and natural sciences for 18 hours per week.<sup>44</sup>

In this period he also became a member of the professional associations *Lotos*<sup>45</sup> and *Deutsche Mathematiker-Vereinigung* [German Association of Mathematicians].<sup>46</sup>

### Heinrich Löwig's later pre-war career

On 27 February 1934 Heinrich Löwig made an application to the Faculty of Science at the German University in Prague for habilitation (qualification for teaching at universities). In his application, he recapitulated his studies, his teaching examination results, his doctoral qualification, his professional career to date and his list of seven publications. As a habilitation thesis, he presented his groundbreaking study *Komplexe euklidische Räume von beliebiger endlicher oder transfiniter Dimensionszahl* [Complex euclidean spaces of any finite or transfinite dimension] [L6], which discussed the dimensions of vector spaces in finite and infinite dimensions and application of this theory to functional analysis and had been published in the journal *Acta Litterarum ac Scientiarum Regiae Universitatis Hungaricae Francisco-Josephinae, Sectio Scientiarum Mathematicarum*, Szeged. He supported his latest professional interest with

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*Transformationen*, *Mathematische Annalen* 8(1875), pp. 215–303. Other significant new ideas are not found here.

<sup>44</sup> See *I. Jahresbericht des Deutschen Staats-Realgymnasiums (81. des Deutschen Staatsgymnasiums, 42. des Deutschen Staatsrealschule) in Leitmeritz, für das Schuljahr 1934/35* [First Annual Report of the German State Grammar School (81st of the German state school, 42nd of the German State School) in Litoměřice, for the 1934/35 school year], Leitmeritz, 1935, pp. 3–4. See also biographical details provided by Löwig with his application for habilitation of 27 February 1935, Habilitation Proceedings Collection, Faculty of Science, German University in Prague, Archive of Charles University.

<sup>45</sup> *Lotos (Naturhistorischer Verein "Lotos" in Prag)* [Natural Historical Society "Lotos" in Prague] was a German scientific association in Prague, which began in 1848. Initially it brought together students, doctors and private docents without positions, who were interested in mathematics, physics, science, medicine, and related fields. Because soon the circle of interested parties broadened to numerous representatives from scientific circles, in 1849 *Lotos* became an association of professional scientists, which carried out professional activities until 1945. The language used was exclusively German, and hence it was mainly German scientists who gathered for lectures, public discussions, the General Assembly and elections. From 1851 the association published a periodical called *Lotos* (it was stopped in 1943). Regarding the history of the association, see E. Těšínská: *Fyzikální vědy v pražském německém přírodovědném spolku "Lotos"*, *Pokroky matematiky, fyziky a astronomie* [Physical sciences in the Prague German Scientific Association "Lotos", *Advances in Mathematics, Physics and Astronomy*] 42(1997), No. 1, pp. 35–47.

<sup>46</sup> Heinrich Löwig became a member of the *Deutsche Mathematiker-Vereinigung* [German Association of Mathematicians] in 1929. See the notation in the *Jahrbuch über die Fortschritte der Mathematik* 40(1931), p. XXVII, where it states: 1929. *Löwig, H., Dr., Reichenberg (Č. S. R.), 13 Robert Blumstrasse. Heinrich L., born 29 October 1904 Prague, prom. 1928 Prague.*

his short work *Über die Dimension linearer Räume* [On the dimension of linear spaces] [L7],<sup>47</sup> published in the journal *Studia Mathematica*.<sup>48</sup> It is very likely that Löwig's choice of topics in the mid 1930s was greatly influenced by Karl Löwner and Paul Funk, young professors at the German University who kept up with world trends in mathematics.

It is possible to reconstruct the habilitation proceedings from minutes of Professorial Council meetings at the Faculty of Science, German University in Prague.<sup>49</sup> On 16 May 1934 a habilitation committee was set up, consisting of full professors Ludvig Berwald, Karl Löwner and Arthur Winternitz (mathematics), Reinhold Fürth (theoretical physics) and Karl Ludwig Wagner (physical chemistry). On 14 June the committee assessed Löwig's habilitation works and related materials and made a recommendation to the Professorial Council. On 18 October the Professorial Council agreed to hear his habilitation lecture at their next meeting. On 6 December, Löwig gave his habilitation lecture *Über das aktual Unendliche* [About actual infinity] and his qualification as *Privatdozent* [Adjunct Professor] of mathematics was recommended. After carrying out security investigations, on 20 January 1935 the Department of Education and National Culture granted him *venia docendi* in No. 155410/34-IV/3, giving him the right to teach mathematics at the German University in Prague and call himself *Privatdozent*.

### Heinrich Löwig's university work from 1935 to 1937

After successful habilitation, Heinrich Löwig began lecturing in mathematics at the Faculty of Science, German University in Prague. In the winter semester of the 1935/36 academic year, he taught an optional five hour per week course called *Differentialgeometrie (Theorie der Raumkurven und Flächen)* [Differential Geometry (Theory of Space Curves and Surfaces)]. In the summer semester of that year he led an optional three hour per week course called *Unendlichen Reihen (mit Übungen)* [Nonfinite Series (with Exercises)]. In the winter semester of 1936/37 he was entrusted with a mandatory two hour per week course called *Infinitesimalrechnung für Hörer der Chemie* [Calculus for Chemistry Students].<sup>50</sup> He gave no university lectures in the following three

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<sup>47</sup> Both works were positively reviewed by Professor G. Aumann of Frankfurt am Main in the review journal *Jahrbuch über die Fortschritte der Mathematik* (see JFM60.0324.01, 60(1934), p. 324, and respectively JFM60.1229.01, 60(1934), p. 1229). In the review journal *Zentralblatt für Mathematik und ihre Grenzgebiet*, his habilitation study was praised by Professor M. H. Stone of Cambridge, Massachusetts (see ZBL0009.25901, Volume 9, p. 259).

<sup>48</sup> See application for habilitation in personal folder H. Löwig, Faculty of Science Collection, German University in Prague, Archive of Charles University.

<sup>49</sup> See *Zasedání prof. kolegia 1922/3–1938* [Minutes of Collegium of Professors 1922/3–1938], Carton No. 1, Faculty of Science, German University in Prague, Archive of Charles University.

<sup>50</sup> See *Ordnung der Vorlesungen an der Deutschen Universität in Prag in Wintersemester 1935/36, Sommersemester 1935/36, Wintersemester 1936/37* [List of Lectures at the German University in Prague].



semesters (summer 1936/37, winter 1937/38, summer 1937/38).<sup>51</sup> In 1976 he wrote in English about this cessation of his work:

*This permission called “venia docendi”, was granted to me at the beginning of 1935; then I had the right to call myself a “privatdozent”. This, however, did not imply any salary, and I could not get any salaried position at any university at that time. For this reason, I accepted a position as a secondary teacher outside of Prague in 1934. (My application for the venia docendi was already being considered then, but it had not gone through yet.)*<sup>52</sup>

It is of note that on 23–28 September 1934 Löwig attended the Second Congress of Mathematicians of the Slavic Countries held in Prague. There on 27 September he gave a lecture in the mathematical analysis segment called *Über allgemeine Spektralfunktionen* [On the fundamentals of spectral functions] [L8], the content of which was later published in the journal *Časopis pro pěstování matematiky a fysiky* [Journal for the Cultivation of Mathematics and Physics].<sup>53</sup>

### Heinrich Löwig’s teaching career from 1935 to 1938

On 1 September 1935 Heinrich Löwig was appointed Interim Mathematics and Physics Teacher at the *Deutsche Staatsrealgymnasium in Reichenberg* [German State Grammar School in Liberec], where he taught until 31 August 1936. From 1 September 1936 he was transferred to the *Städtisch Mädchenreformrealgymnasium in Reichenberg* [German Modern Girls Grammar School in Liberec], where he taught as Interim Mathematics Teacher until 31 January 1937.<sup>54</sup> From 1 February to 31 August 1937 he was interim teacher at the German State Grammar School at Ústí nad Labem. From 1 September 1937 to 31 August 1938 he was Mathematics Teacher, still temporary, at the German State Grammar School at Frývaldov (now Jeseník).<sup>55</sup>

<sup>51</sup> See *Ordnung der Vorlesungen an der Deutschen Universität in Prag im Sommersemester 1936/37, Wintersemester 1937/38, Sommersemester 1937/38* [List of Lectures at the German University in Prague].

<sup>52</sup> See Löwig’s letter to Joseph John Hallein of 4 October 1976, Lowig-Jackson private family archive, Sydney.

<sup>53</sup> See *Zprávy o druhém sjezdu matematiků zemí slovanských* [Proceedings of the Second Congress of Mathematicians of the Slavic Countries], Prague, 23 to 28 September 1934, Příloha Časopisu pro pěstování matematiky a fysiky [Supplement of Journal for the Cultivation of Mathematics and Physics], 64(1935), p. XLIV. The following people lectured in the section on mathematical analysis on 27 September: G. N. Watson (Birmingham), J. Karamata (Beograd), F. Wolf (Prague), T. Peyovitch (Beograd), S. Piccard (Neuchâtel), C. Popovici (Jasi), K. Löwner (Prague), H. Löwig (Prague) and V. Knichal (Prague) (see p. X).

<sup>54</sup> See Heinrich Löwig’s request for residency status in Liberec drawn up on 10 December 1938 in Prague and addressed to the Liberec City Council, AM Liberec Collection, under signature 324/37, Carton No. 385, State District Archives Liberec, and the Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>55</sup> See Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice, and also registration card of the Löwig family in the Liberec Resident Register, State District Archives Liberec.



In 1937, in the journal *Mitteilungen aus dem höheren Schulwesen*, Löwig published an article on the basis of his experience called *Die Einführung der Differentialquotienten im Mittelschulunterrichte. "Wissen und Wirken"* [The introduction of differential quotients in high school lessons. "Knowledge and Action"] [L9], which dealt with didactic methodology.

On 1 September 1938 Löwig at last attained a permanent appointment as mathematics and physics teacher at the German State Grammar School in Nový Jičín.<sup>56</sup> However, before he could take up the position, the mobilisation began and Löwig had to enlist.

On 30 September 1938, as a result of the Munich Pact, the Czechoslovak Republic was obliged to hand over a large part of its territory to Germany, Poland and Hungary. The remaining truncated area was declared the Second Czechoslovak Republic.<sup>57</sup> Nový Jičín was within the so-called occupied territory, which is why on 1 October 1938 Löwig had to give up his teaching position and leave the Sudetenland.

Löwig moved to Prague and within a couple of weeks, on 19 October 1938, registered as a resident at Building No. 478, Bubeneč, Prague XIX.<sup>58</sup> Because he was unemployed, he turned to the Faculty of Science at the German University to exercise his right of *venia docendi*. At the beginning of the 1938/39 winter semester he was intended to teach an optional two-hour per week lecture course *Mengenanalysis (Voraussetzung: Differential- und Integralrechnung)* [Set-Theoretical Analysis (Prerequisite: Differential and Integral Calculus)].<sup>59</sup>

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<sup>56</sup> See Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>57</sup> The Second Czechoslovak Republic (Česko-slovenská republika) existed from 1 October 1938 to 14 March 1939.

<sup>58</sup> See Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>59</sup> See *Ordnung der Vorlesungen an der Deutschen Universität in Prag in Wintersemester 1938/39* [List of Lectures at the German University in Prague in the winter semester 1938/39]. For interest we add that according to the data in the student catalogue, only one student enrolled in Löwig's optional lecture series – Viktor Lieblein – who was only in his third semester in the autumn school year 1938/39. The archived record shows Löwig's lecture as crossed out (that is, it was cancelled or was never completed and the student could not write the examination). The following lectures and seminars were similarly crossed out: Ludwig Berwald (*Integralgleichungen a Mathematische Proseminar*) [Integral Equations and Mathematical Proseminar], Karl Löwner (*Höhere Analysis a Mathematische Seminar*) [Advanced Analysis and Mathematical Seminar], Paul Georg Funk (*Potentialtheorie und Elektronenoptik*) [Potential Theory and Electron Optics], Arthur Winternitz (*Differential- und Integralrechnung*) [Differential and Integral Calculus], Walter Fröhlich (*Kurs für darstellende und projektive Geometrie*) [Descriptive and Projective Geometry], Ernst Lammel (*Analytische Geometrie*) [Analytical Geometry], Maxmilian Pinl (*Vektor und Tensorrechnung und mathematische Grundlagen der Relativitätstheorie*) [Vector and Tensor Calculus and Mathematical Foundations of Relativity Theory] and Otto Warga (*Differentialgeometrie*) [Differential Geometry]. In some pages of the catalogue it notes that Löwner's lectures began to be taught by Ernst Lammel, Winternitz's lectures by Otto Warga, Fröhlich's lectures by Alfred Rössler, Berwald's expert seminars taken by Ernst Lammel and Löwner's seminar by

To provide an overall context – in the 1938/39 winter semester at the Faculty of Science, German University in Prague there were three full professors of mathematics (Ludwig Berwald, Karl Löwner and Paul Georg Funk), an associate professor of mathematics (Arthur Winternitz), four qualified docents of mathematics (Heinrich Löwig, Ernst Lammel (1908–1961), Maxmilian Pinl (1897–1978) and Otto Warga (1909–1969)), Dr Walter Frölich, professor of astronomy Erwin Finlay-Freudlich (1885–1964), and professor of geophysics and astronomy Leo Wenzel Pollak (1888–1964). Together they offered 20 mandatory and optional courses. Physics lectures were given by two full professors (Reinhold Fürth and Philipp Frank) and three docents (Otto Blüh, Walter Glaser and Kurt Sitte).

The situation however got worse during the autumn of 1938 and spring 1939, as fascist and anti-Jewish tendencies grew in the university community.<sup>60</sup> As a result of racist regulations, by the 1938/39 summer semester the only docents remaining at the mathematics department were Otto Warga and Ernst Lammel. Another docent, Alfred Rössler, was called from the German Technical University to help out with teaching geometry. They were able to offer only three mandatory courses for students of mathematics, plus one seminar and one pro-seminar.<sup>61</sup> At “pure” physics, only one docent remained – Walter Glaser.

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Otto Warga. In addition Otto Warga continued teaching his substantive subject *Infinitesimalrechnung für Hörer der Chemie* [Calculus for Chemistry Students]. All other lectures and seminars were cancelled with no substitutions. See student catalogue *O. U. A. O. Naturwissenschaftler W. S. 1938–39*, Faculty of Science, German University in Prague, Archive of Charles University.

The bad situation at the Faculty of Science of the German University in Prague is also evidenced in Löwig’s letter of 6 January 1939 addressed to the dean of the Faculty of Science, containing the following written in German:

*I herein point out that the two hour lecture series “Mengenanalysis” [Set-Theoretical Analysis] which I was meant to offer in the winter semester 1938–39 will not be held. I will not be holding any other lecture in its place.*

*In relation to this I note that I did not choose this outcome freely, but rather, have been forced by changing circumstances to cancel my lecture. I refer to the interview, which I had with the dean on 31st December 1938.* Faculty of Science, Faculty File Collection, German University in Prague, Archives of Charles University.

<sup>60</sup> See the Czechoslovak government regulation of late January and early February 1939 regarding state service and the Jewish population inventory and also the government regulation of 4 July 1939 about the legal status of Jews in public life, which virtually eliminated the Jewish people from participating in a number of professions, public life and cultural life. For instance Jews could not be high school teachers, university lecturers or professors, lawyers, notaries, judges, court experts or interpreters, civil engineers, mining engineers, doctors, chemists, veterinarians, etc. They were not allowed to be trustees, guardians and administrators, or members of local government offices, corporations, committees and congregations to support public administration, educational authorities, public institutes, learned societies and public scientific institutions, etc. They were also not allowed to be performers, editors of newspapers and magazines, to own any companies, firms, institutes, etc.

<sup>61</sup> Ernst Lammel gave lectures in *Höhere Analysis II* [Advanced Analysis II] and led a *Mathematische Proseminar* [Mathematics Proseminar], Otto Warga lectured in *Differential- und Integralrechnung II* [Differential and Integral Calculus II] and coordinated a *Mathematische Seminar* [Mathematical Seminar] and Alfred Rössler gave lectures in *Kurs*

And so the natural sciences at the Faculty of Science of the German University in Prague were nearly destroyed.<sup>62</sup>

### The wartime story of Heinrich Löwig's father

As was alluded to earlier, after retiring in 1930 Löwig's father Heinrich Löwig moved with his wife Katharina to Liberec where he intended to spend his retirement. According to an account written later by his son, in August 1938 Heinrich Löwig refused to leave German occupied territory, leading to his arrest by the Gestapo.

*My father was detained by the Nazi Regime more often than I was. In November 1938 in Liberec, where he lived at that time, he was arrested without provocation by the Gestapo, imprisoned for several days and then forced to leave the Czechoslovakian German occupied territory.*<sup>63</sup>

Heinrich Löwig then followed his son to Prague. On 28 November 1938 he found accommodation at 18 Grand Pension, Bubeneč, where he lived until 15 May 1939. At the end of 1938 he applied for and was granted Czechoslovak citizenship and received his regular pension. On 30 December 1939 he obtained a new identity card.<sup>64</sup> The following information was later noted in the Pardubice Resident Register:

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*für darstellende und projektive Geometrie* [Descriptive and Projective Geometry]. See *Ordnung der Vorlesungen an der Deutschen Universität in Prag in Sommersemester 1938/39* [List of Lectures at the German University in Prague in the summer semester 1938/39].

<sup>62</sup> At the end of the year about 20% of students and 30% of educators at the German University in Prague were of Jewish origin, many of whom had found refuge in Prague by emigrating from Nazi Germany. Already in December 1938 the university tried to “address the issue of students and teachers of Jewish origin”. In December 1938 the faculty established a rule governing all examinations: that Jewish teachers could examine only Jewish students, only Aryan teachers could examine Aryans. On 27 January 1939 the Czechoslovak government adopted a regulation in force effective 4 February 1939, ordering that all teaching staff of Jewish origin were to stop carrying out public service. The impact on the lives of mathematicians, physicists and astronomers of Jewish origin in Europe during the war is dealt with in [1] and also by Reinhard Siegmund-Schultze in the book *Mathematicians Fleeing from Nazi Germany. Individual Fates and Global Impact*, Princeton University Press, Princeton and Oxford, 2009.

<sup>63</sup> Löwig's letter of 23 May 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>64</sup> See request for issue of identity card held under signature L 1482/7 Heinrich Löwig in Carton No. 6653, Collection PŘ 1941–1951, Police Directorate, Prague II – General Registry 1941–1950, National Archives of the Czech Republic. With his request he attached certification of state citizenship No. 95000/1985, Pardubice Residency Certificate No. 580/38 issued on 23 November 1938, Baptism Certificate issued by the Archdeacon at St. Ludmila Church at Královské Vinohrady on 12 September 1904. Later he also presented his Marriage Certificate No. 1839 issued by the Archdeacon at St. Ludmila Church at Královské Vinohrady on 23 April 1939 and housing form No. 1514.39 issued by the Bubeneč Police Commissar. Note that the identity card was drawn up on 1 December 1939 under No. 49968B; it was given to him on 30 December 1939.

*Engineer Löwig born 1874 definitely gained German citizenship because on 10 October 1938 he was in occupied territory and was born in the occupied territory before 1 January 1910.*

*In my opinion, even his son Jindřich became a German citizen, because on 10 October 1938 he was in the army, which he joined at Nový Jičín – occupied – and his father was born in occupied territory. At the Prague Land Office he was however told that he does not have to apply for Czechoslovak citizenship, but rather just for residency status. – He always worked in German language schools. –*

*In the Citizenship Certificate dated 16 June 1939 No. 95000/1985/1939-7, the Ministry of Interior vouches that the German citizen Engineer Heinrich Löwig became a Czechoslovak citizen and hence a citizen of the Protectorate of Bohemia and Moravia – under the citizenship proclamation of 20 December 1938 according to the agreement with the German Regime of 20.11.1938 No. 300 Sb. – See files D446/40. His wife Kateřina née Chwojka is also listed as a state citizen.*

*Residency paper is to be prepared for him – D446/40*

*Confirmation of residency status issued under No. A2937/45<sup>65</sup>*

His situation quickly worsened from 15 March 1939 with the establishment of the Protectorate of Bohemia and Moravia. Very soon after occupying the region, the Germans put in place radical racial laws, resulting in Heinrich Löwig's name being listed on the register of Prague's Jewish residents.<sup>66</sup>

During the war, he changed addresses several times, sometimes living alone and sometimes with his wife and son. From 1939 to 1941 he lived in Bubeneč, Prague XIX,<sup>67</sup> in 1941 and 1942 at Prague XII,<sup>68</sup> from 1942 to 1943 at Břevnov, Prague XVIII,<sup>69</sup> from 1943 to 1944 at Prague V.<sup>70</sup> On 17 March 1944 he was

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<sup>65</sup> Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>66</sup> According to the Nuremberg Laws people of Jewish faith were not automatically denoted Jewish; ethnicity was attributed on the basis of registry records and census data. Someone who had three or more Jewish grandparents was defined as a Jew, someone with two Jewish grandparents as first degree half-caste, someone with one Jewish grandparent as second degree half-caste. Even though he had been christened in 1904, Heinrich Löwig was considered a Jew. According to the Terezín Memorial Database he was listed in the *Prague Name List* (that is, list of Jewish population No. A 7127) and in *Prague Residual List* (that is, the list of Jews related to Aryans No. A 7199).

<sup>67</sup> He gave his address as 47 Národní Obrany Street from 15 April 1939 to 8 May 1941.

<sup>68</sup> He gave his address as 41 Korunní Street from 12 May 1941 to 8 August 1942. In May 1941 he requested an amended card relating to a move, see request held under signature L 1482/7 Heinrich Löwig in Carton No. 6653, Collection PŘ 1941–1951, Police Directorate Prague II – General Registry 1941–1950, National Archives of the Czech Republic.

<sup>69</sup> He gave his address as 1479 Bezejmenná Street from 8 August 1942 to 3 November 1943.

<sup>70</sup> He gave his address as 4 Waldhausergasse and lived there approximately between 3 November 1943 to 17 March 1944 and officially again from 12 May to 31 August 1944. All information about addresses was obtained from the card for Engineer Heinrich Löwig held in

hospitalised at the *Krankenhaus der Juden in Kelleygasse* [Jewish Hospital] in Prague V until 12 May 1944.

According to his son's account, his father was arrested by the Gestapo on 21 August 1944 and taken without appeal to the Small Fortress (the infamous Gestapo prison) in Theresienstadt, where on 31 August 1944 he died after interrogation. We note that his death was recorded in a protocol on 19 September, which was sent to offices in Prague V. The German document states that *the prisoner Jew Löwig Heinrich born on 1.9.74 in Komotau, Occupation: pensioner, Residence: 4 Waldhauserstrasse, Prague V died of a heart attack on 31 August 1944 at 19:00 in Theresienstadt Police Prison.*<sup>71</sup>

### Jindřich Löwig's wartime story

After arriving in Prague in the autumn of 1938, the younger Heinrich Löwig subscribed to Czechoslovak nationality. On 22 April 1939 he applied for Czech citizenship and became a citizen of the Protectorate.<sup>72</sup> From that time he called himself Jindřich (Czech for Henry). So in this part of the chapter, he is referred to as Jindřich Löwig.

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Collection PŘ II – EO Police Directorate Prague II – Resident Register, National Archives of the Czech Republic.

<sup>71</sup> The document signed by SS Captain Heinrich Jökl was sent to Prague on 20 September, recorded as received on 27 September, registered in the public register 7 October, and the family informed via the despatch of a death certificate. See the Terezín Gestapo's report archived under signature in L 1482/7 Heinrich Löwig in Carton No. 6653, Collection PŘ 1941–1951, Police Directorate, Prague II – General Registry 1941–1950, National Archives of the Czech Republic.

See also Database of Terezín Ghetto Prisoners, where it states *Löwig Jindřich, engineer, born 10 September 1874, died in Terezín Ghetto, 31 August 1944 and attached notes Detention No. 41 v. 1. 9. 1944*. Also a letter written by his son Heinrich Löwig on 23 May 1945 to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic – *On 21 August 1944 in Prague he was again arrested without provocation and sent to the Terezín Small Fortress. On 3 October 1944 I was advised by the police office, that my father died at Terezín on 31 August 1944, only 10 days after his arrest. The cause of death was listed as heart attack, which is written on his death certificate. (The death certificate of course does not describe, how inhumanely the SS treated prisoners under their watch.)* We note that at the beginning of October the family received an official notification of the elder Heinrich Löwig's death and his clothes. A few days later, his son Heinrich (Jindřich) Löwig received a directive for transport to a labour camp. His thoughts and how he felt about this can only be imagined.

<sup>72</sup> From 1938 Heinrich Löwig used the name Jindřich Löwig. In [1] and in a book by A. Míšková called *Německá (Karlova) univerzita od Mnichova k 9. květnu 1945* (Praha, 2002) [The German (Charles) University from Munich to 9 May 1945 (Prague, 2002)], on page 60 it erroneously states that H. Löwig was in Tasmania during the war. According to materials held in the Czech National Archives, in the autumn of 1938 Heinrich Löwig moved to 18 Grand Pension, Bubeneč, Praze XIX, where he stayed until 15 May; from 15 May he was still registered as living in Bubeneč, Praze XIX at 47 Národní Obrany Street; from 1 April 1941 he lived at Building No. 1479, Bezejmenná (today Pod Marjánkou), Břevnov, Prague XVIII. His registry card was closed off on 13 February 1948 with a note referring to his departure for Tasmania and registration as domiciled in Hobart. All details of his addresses were obtained from the card RNDr. Jindřich Löwig held in Collection PŘ II – EO Police Head Office, Prague II – evidence of residency, National Archives of the Czech Republic.

A notation in Czech in the Pardubice Resident Register reads:

*The Pardubice District Office Notice of 1 September 1939 declared him a registered resident of Pardubice under Government Regulation of 25 November 1938 No. 310 Sb. z. a n., because under the agreement between the Czechoslovak Republic and the German Regime, he remained a citizen of Czechoslovakia, now of the Protectorate of Bohemia and Moravia. So he was resident of Pardubice since 1 September 1939 – See files D48/49.*<sup>73</sup>

During the winter of 1938 it became apparent that Jindřich Löwig's situation was almost hopeless, as he could not attain any position equal to his qualifications. About this he wrote in English in 1972:

*After Munich, I had to cancel a lecture course which I had announced for the winter-semester [sic] 1938–39.*<sup>74</sup>

In January 1939 the Czechoslovak government introduced restrictive measures for state employees of Jewish descent and on 27 January made a ruling about the residency of emigrants – all such persons were to leave the country within one to six months.

On 10 February 1939 they issued an amended ruling regarding the investigation of the citizenship and residency of emigrants<sup>75</sup> and at the same time issued an order that employers had to identify employees of Jewish origin. Older employees were to be pensioned off as soon as possible; middle aged employees were to be suspended and placed on a waiting list;<sup>76</sup> younger employees were to be let go. In the public service, only Jewish employees who were in essential roles were allowed to stay on, and even then had to be transferred to positions where they would not come into contact with the public. In the first instance employers were to encourage voluntary resignations, but employees who did not cooperate were to be let go. All this was to be carried out peaceably by 10 March 1939. An inventory of Jews in political positions, state services, schools and cultural institutions was compiled and they were subsequently expelled. Jews were to be forced to divulge how they had come by their belongings and assets, and their citizenship was to be investigated and revoked as relevant. The government was even considering strict segregation of the Jewish population.

<sup>73</sup> Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>74</sup> *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, held in Lowig-Jackson private family archive, Sydney.

<sup>75</sup> This review applied to persons who acquired citizenship after 1 November 1918 and those who had residency status in places which on 30 September 1938 were transferred to “neighbours”. It did not apply to people who, according to the revised indicators, were Czechs, Slovaks and Ruthenians. It was based on nationality and citizenship as declared in the 1930 census and data on school attendance and participation in cultural and ethnic associations. People not assessed as Czechoslovak citizens had to leave the Republic's territory.

<sup>76</sup> Leave with waiting list was enshrined in Austrian law No. 15/1914 *Regulation of service conditions of state officials and public servants* (so-called staff policies), issued 25 January 1914. It regulated transfer to so-called temporary rest, of a person temporarily incapable of service, but expected to return to capability. See also paragraphs 75, 76, 79 and 81 of the above-mentioned law.



Because of his father's origins – even though since 1928 he had claimed non-religious status – under the racial laws Heinrich Löwig was identified as a first degree half-caste and listed on the register *First degree half-castes of working age in Prague* (Inv. No. A 7146).<sup>77</sup> He later wrote of this fate in a letter in Czech to Vladimír Kořínek on 23 May 1945:

*On 1 September 1937*<sup>78</sup> [sic, 1938] *I was appointed as a permanent teacher. But already from the beginning of October 1938, when my then location Nový Jičín was taken over by the German army, I was no longer allowed to teach. In subsequent months, I tried to re-gain employment in the Czechoslovak state service, but without success. On 1 May 1939 I was suspended and placed on a waiting list by the Protectorate of Bohemia and Moravia and on 1 June 1940 was made permanently unemployed. I was given a pay-out on the basis of two years service. (I had no right to an ongoing pension because I had not had ten years service.)*

*Because of how the Germans treated me, and because my mother's father Václav Chwojka was of Czech origin, I have been reporting as a Czech national since 1939. This was officially recognised with the 22 April 1939 approval of my application to register as a resident under Protectorate jurisdiction.*<sup>79</sup>

The Protectorate's 4 June 1939 ruling hit him hard, with his employment terminated and no pension approved. In the years 1940 to 1943 he could obtain no employment of a professional nature. In the same letter he wrote about that stage of his life:

*After being made unemployed, for a long time I had no paid work, but I occupied myself instead with scientific work.*<sup>80</sup>

In May 1943 he was forced by the Office of Employment to take a job as assistant labourer at the firm Remeš & Co. at 4 Kollár Square, Žižkov, Prague, a firm that manufactured metal goods.<sup>81</sup> About this he later wrote in English:

*In 1943 and 1944, I was employed as a labourer in a factory working for the German army.*<sup>82</sup>

Throughout that time, all the while fearing transport to a Jewish ghetto, labour camp or concentration camp, Löwig studied mathematics, specifically

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<sup>77</sup> See database Theresienstadt Ghetto.

<sup>78</sup> Actually 1 September 1938.

<sup>79</sup> Löwig's letter of 23 May 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>80</sup> Löwig's letter of 23 May 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>81</sup> Löwig's letter of 23 May 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>82</sup> See *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, Lowig-Jackson private family archive, Sydney.



abstract algebra. He read journal articles by B. L. van der Waerden,<sup>83</sup> J. von Neumann<sup>84</sup> and B. A. Bernstein<sup>85</sup>, studied articles in the journals *Mathematische Annalen*, *Annals of Mathematics* and *Bulletin of the American Mathematical Society*, and studied modern algebra textbooks (B. L. van der Waerden: *Moderne Algebra* (1930, 1931), C. C. MacDuffee: *An Introduction to Abstract Algebra* (1940), G. Birkhoff: *Lattice Theory* (1941) and G. Birkhoff, S. MacLane: *A Survey of Modern Algebra* (1941).)<sup>86</sup>

During the war years, Löwig even succeeded in publishing two works in the American journal *Annals of Mathematics* entitled *Intrinsic topology and completion of Boolean rings* [L10] and *On the importance of the relation  $[(A, B), (A, C)] = (A, [(B, C), (C, A), (A, B)])$  between three elements of a structure* [L11], which focused on modern topology and Boolean environments.<sup>87</sup> G. Birkhoff endorsed the quality of his work in the journal *Mathematical Reviews*.<sup>88</sup>

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<sup>83</sup> Bartel Leendert van der Waerden (1903–1996) was a Dutch mathematician whose focus was algebra, algebraic geometry, number theory, topology, probability, statistics, quantum mechanics, history of mathematics and astronomy.

<sup>84</sup> John von Neumann (1903–1957) was a Hungarian mathematician, whose focus was lattice theory, algebra, functional analysis, topology, automaton theory, mathematical physics, quantum mathematics, etc.

<sup>85</sup> Benjamin Abram Bernstein (1881–1964) was a Lithuanian-born American mathematician who worked in the fields of algebra and logic.

<sup>86</sup> Cyrus Colton MacDuffee (1895–1961) was an American mathematician who focused particularly on modern algebra.

Garrett Birkhoff (1911–1996) was an American mathematician who was concerned with abstract and universal algebra, differential equations, numerical methods, hydrodynamics, radar sighting, ballistics and the construction of computers.

Saunders MacLane (1909–2005) was a Norwegian mathematician who worked in the fields of algebra, algebraic topology, algebraic geometry, category theory, mathematical logic, evaluation theory and philosophy of mathematics.

<sup>87</sup> The problematics of Boolean algebra and lattice theory were not altogether new to Löwig and Prague mathematicians, as on 3 February 1938 Docent Otomar Pankraz (1903–1976) gave a lecture at a meeting of the mathematical section of the Association of Czech Mathematicians and Physicists *O rozšíření Booleovy algebry* [On the extension of Boolean algebra], where he introduced his audience to Ore's axioms from lattice theory (Ø. Ore: *On the Foundation of Abstract Algebra. I, II*, *Annals of Mathematics* 36(1935), pp. 406–437, 37(1936), pp. 265–292) and Köthe's special results (see *Die Theorie der Verbände, ein neuer Versuch zur Grundlegung der Algebra und der projektiven Geometrie* [Lattice theory, a new approach to the foundation of algebra and projective geometry], *Jahresbericht der Deutschen Mathematiker-Vereinigung* 47 (1937), pp. 125–144). He also pointed to the importance of lattice theory to quantum mechanics (he also referred to the conclusions of work by G. Birkhoff, J. von Neumann: *The Logic of Quantum Mechanics*, *Annals of Mathematics* 37(1936), pp. 823–843) and the possibilities of their application in economics (see work by R. Frische published in Cowles Commission, Colorado Springs, USA, Report 1937, pp. 64–69). During the Second World War Vladimír Kořínek also worked on lattice theory (see *Der Schreiersche Satz und das Zassenhausche Verfahren in Verbänden*, *Věstník Královské české společnosti nauk* [Proceedings of the Royal Czech Society of Sciences], Class: Mathematics – Natural Sciences, 1941, No. 14, pp. 1–29), and later dedicated several articles to these problematics (see Z. Kohoutová, J. Bečvář: *Vladimír Kořínek (1899–1981)*, *History of Mathematics*, Volume No. 27, Center for the History of Sciences, Prague, 2005).

<sup>88</sup> See *Mathematical Reviews* MR0006494, Volume 3, item 312c, respectively MR0009756,

On 1 August 1944 Jindřich Löwig wrote in Czech about his studies to Vladimír Kořínek:<sup>89</sup>

*Honoured Professor!*

*I am writing to thank you in retrospect for having given me the special off-print of your work “Der Schreiersche Satz und das Zassenhausssche Verfahren in Verbänden” when I visited you on 22 May 1943. At that time I told you that I was obliged to work as a metalworker by the Office of Employment. I have been in that employ for over a year now and have had little free time. I am only now having my first holiday. So I have finally been able to study your article, and I am pleased to say that I fully understood your clauses and proofs. Back when I studied Ore’s<sup>90</sup> article “On the theorem of Jordan-Hölder” (Transactions of the American Mathematical Society, Vol. 41, No. 2, pp. 266–275, 1937), on which you partially rely, the ideas had not been so clear to me. I have no doubt your work is very important to the further development of abstract algebra.*

*I would be pleased to meet with you once again, respected Professor. Would it be convenient if I visited you on Friday 4 August 1944 around 20:00 in the evening at your apartment? If you do not respond to this letter, I will assume that you agree with the suggested time and date. Alternatively, I still have free time throughout this week. From 7 August, I would be available from 18:00 on Monday to Friday and probably all day on Saturday and Sunday.*

*Yours with great respect,  
Jindřich Löwig.<sup>91</sup>*

In 1950 Löwig wrote a short handwritten letter in Czech to Kořínek where he once again briefly mentioned his mathematical work during the war:

*During the Second World War I happened to study the work of B. A. Bernstein: A generalization of the syllogism. Bulletin of the American Mathematical Society 30 (1924), pp. 125–127. This paper contains the following two clauses:*

*“The totality of transitive universal relations in a Boolean algebra is given by”*

$$(4) \quad Axy + Bxy' + Cx'y + Dx'y' = 0,$$

$$A + D < B + C, \quad AD < BC.$$

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Volume 5, Item 197d. We note for completeness, that these were evaluated in review journals *Zentralblatt für Mathematik und ihre Grenzgebiete* by G. Nöbling (ZBL0061.39306, Volume 61, p. 393), respectively H. Müller (ZBL0061.04803, Volume 61, p. 48).

<sup>89</sup> Vladimír Kořínek (1899–1981) was a Czech algebraist, professor at Charles University, member of the Czechoslovak Academy of Sciences and important representative of Czech mathematicians during the second and third quarters of the 20th century. For more about his life and work, see Z. Kohoutová, J. Bečvář: *Vladimír Kořínek (1899–1981)*, History of Mathematics, Volume No. 27, Center for the History of Sciences, Prague, 2005.

<sup>90</sup> Øystein Ore (1899–1968) was a Norwegian mathematician who worked in the fields of abstract algebra, number theory and graph theory.

<sup>91</sup> Löwig’s letter of 1 August 1944 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic. Kořínek was one of the few Czech mathematicians who was not afraid of helping and meeting with Jewish colleagues. On Löwig’s letter he wrote a note: *3 August 1944 I responded with a card, saying I expect his visit.*

“The totality of existent transitive universal relations is given by”

$$Axy + Bxy' + Cx'y + Dx'y' = 0,$$

$$A + D < B + C, \quad AD = 0.$$

*These two clauses seem to me to be incorrect or, at the very least, unclear. That is why I have been considering that, as an assumption, it sounds more correct that the Boolean relation is transitive. The results are contained in the work which I attach for you today. My work also discusses cases where the Boolean relation is an equivalence relation, where it is a partial order and where it is a lattice order.*<sup>92</sup>

We note that during the war Jindřich Löwig kept in touch with Czech, German, Austrian, Hungarian and American mathematicians, as is evidenced in a letter he wrote in Czech to Kořínek on 6 September 1973 (by which time Löwig had already long been living in Edmonton, Canada):

*Respected colleague,*

*I enclose a short handwritten mathematical piece titled: Note on the theory of independence in continuous geometry, and I allow myself to ask if you might arrange publication of this work in the “Czechoslovak Mathematical Journal”.*<sup>93</sup>

*I’d like to explain to you, how I came to write this treatise. It started with my writing a letter to von Neumann in May 1941 (when the United States of America were not yet in the war). In that letter I asked him how I might be able to obtain his lecture notes on continuous geometries. He responded that the German mathematician Gottfried Köthe<sup>94</sup> had a copy of those lecture notes.*

*So in February 1942 I wrote a letter to Köthe, requesting to borrow his copy of von-Neumann’s [sic] lecture notes.<sup>95</sup> Köthe has no racial prejudices and responded to my request. I then studied von-Neumann’s [sic] lectures in great detail and returned them to Köthe in June 1942. I let him know that I had found two gross errors and explained these to him. In August 1946, after the war, I wrote a letter to von Neumann in which I explained what I had written to Köthe in June 1942.*

*This did not lead to any discussion with von Neumann. But in January 1957, shortly before von-Neumann’s [sic] death, I received a letter from Israel*

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<sup>92</sup> Löwig’s letter of 23 August 1950 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic. Löwig sent Kořínek the manuscript of his work, which was later published as *On transitive Boolean relations* [L12] in the Czechoslovak Mathematical Journal.

<sup>93</sup> The article was published as *Note on the theory of independence in continuous geometries* [L22] in the Czechoslovak Mathematical Journal.

<sup>94</sup> Gottfried Maria Hugo Köthe (1905–1989) was an Austrian mathematician, who worked in the areas of linear algebra, topology and fundamentals of functional analysis.

<sup>95</sup> This relates to *Lecture Notes of Continuous Geometry* on lectures which J. von Neumann gave from 1935 to 1937 at the Institute for Advanced Study in Princeton, New Jersey.

Halperin,<sup>96</sup> in which he asked me what errors I had found in von-Neumann's [sic] lectures on continuous geometries. I responded to Halperin right away. As you know, Halperin then arranged the publication of von-Neumann's [sic] lectures as a book which came out in 1960. The errors which I had identified had been corrected in that book, with a reference on page 291. (It mistakenly states that I wrote my letter to von Neumann in 1942. I don't know why Halperin wrote that – by the time he checked the reference with me, it was too late to make the correction.)<sup>97</sup>

For a long period after that I did not occupy myself with continuous geometries. But in 1965, at the University of Alberta, I had a student who wanted to write a doctoral thesis about lattice theory. I advised him to study the book "Continuous Geometries". That's how it came about that I again at long last studied von-Neumann's [sic] lectures and found another error which had up to then escaped the attention of von Neumann, L. R. Wilcox<sup>98</sup> (who in his time wrote "notes" on von-Neumann's [sic] lectures), Halperin and myself. Specifically, I found that Theorem 2.7 on page 13 of the book is incorrect.<sup>99</sup> I alerted Halperin of this in a letter in February 1967. At first Halperin did not want to admit that I was right. He responded: "I believe that Theorem 2.7 ... is correct." (He clearly had not read my proof.) In a further letter he wrote: "In my opinion the theorem is stated precisely, and it is proved rigorously and completely." I wrote him another letter in which I explained the difference between Theorem 2.7 and the proof as it stands in the lecture notes and books. Only then did he admit that I was right.

Regarding the error, he also alerted Wilcox, currently professor at the Illinois Institute of Technology. Wilcox understood it immediately and did not insist that what he'd written in the past had to be correct. On the contrary, he wrote

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<sup>96</sup> Israel Halperin (1911–2007) was a Canadian mathematician and anti-war activist.

<sup>97</sup> See J. von Neumann: *Continuous Geometry*, foreword by Israel Halperin, Princeton University Press, Princeton, New Jersey, 1960. On page 291 Israel Halperin makes reference to Löwig correcting the proof of Lemma 11.6 (p. 189), the form and meaning of Lemma 13.1 (p. 198) and the flawed proof of Theorem 13.1 (pp. 197–198). Israel Halperin wrote about these changes: ... *This is the only serious change in this book from the 1935–37 edition of the Notes.*

See review by F. Maeda published in *Mathematical Reviews* (MR0120174): ... *H. Löwig pointed out that there are two slips in the original note. One of them is in the proof of Lemma 11.6. In the present book Lemma 11.6 is changed slightly so that it is a reformation of Lemma 11.5 interchanging two indices. The second slip is in the very long proof of Theorem 13.1. In the present book this theorem is proved in a few words, using the following Lemma 13.2 (found by Halperin and von Neumann in 1937): Supposing  $a \leq b$  in a complemented modular lattice  $L$ , for any  $x$  in  $L$  there exists a relative complement  $u$  of  $a$  in  $b$  such that  $x = (x \cup u) \cap (x \cup a)$ . This is the only serious change in this book from the original notes.*

<sup>98</sup> L. Roy Wilcox (1912–1999), an American mathematician, worked in the fields of algebra (particularly lattice theory), linguistics, electro technics and music.

<sup>99</sup> Theorem 2.7 states: *A system  $(a_\sigma; \sigma \in I) \perp$  if and only if the class  $S$  of all  $\sum(a_\sigma; \sigma \in J)$ ,  $J \subset I$ , is isomorphic to the Boolean algebra  $\mathfrak{J}$  of the subsets of  $I$ , where isomorphism means a transformation of  $\mathfrak{J}$  into  $S$  carrying the operations  $\mathfrak{S}$ ,  $\mathfrak{P}$  into  $\sum$ ,  $\prod$  respectively. J. von Neumann: *Continuous geometry*, foreword by Israel Halperin, Princeton University Press, Princeton, New Jersey, 1960, pp. 13–14.*

to me how Theorem 2.7 should be formulated and his formulation is practically the same as Theorem 2.7' in my "Note on the theory of independence ..." (of course I had written my version of Theorem 2.7 before I received an answer from Wilcox.)

In one letter written to me in 1967, Halperin expressed the opinion that when using the terms "isomorphism" and "transformation", von Neumann did not necessarily assume that these could simply be switched. But at the beginning of his letter Wilcox stated:

"So far as I know, von Neumann never used the term *isomorphism* except to refer to one-to-one correspondence. It is safe to conclude that transformation also meant one-to-one correspondence."

In his "Note on the theory of independence in continuous geometries" he proves that Theorem 2.7 is valid when set  $L$  is infinite, and that otherwise it is invalid.

I have not heard from you since Dr. Dlab<sup>100</sup> spoke with you in Prague in 1966. At that time, Dlab told me that you had married. My heartfelt congratulations. How are you going in general?

Greetings.

Yours,

Jindřich Löwig.<sup>101</sup>

Until 15 October 1944 Jindřich Löwig lived with his mother at Building No. 1479, Břevnov, Prague and worked as an unskilled labourer's assistant at the metalworks. On 16 October 1944 he was transported to a German labour camp. Of this difficult time he wrote:

... On 16 October 1944 I had to present myself at the Riding School at Jelení třída, Prague IV for special work employment. I then spent almost seven months in special labour camps for Aryans married to Jewish women and persons of mixed race. I was finally released on 5 May 1945.<sup>102</sup>

Jindřich wrote a memoir about his difficult life and the physical work in labour camps at Klettendorf at Breslau (Vratislav, Wrocław), Gräditz, Tvoršovice and Bystřice u Benešova, which is included in an appendix of this book.<sup>103</sup>

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<sup>100</sup> Vlastimil Dlab (born 1932) is a renowned Canadian mathematician of Czech origin, who works largely in the field of abstract algebra.

<sup>101</sup> Lowig's letter of 6 September 1973 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>102</sup> Lowig's letter of 23 May 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>103</sup> Löwig's memoir is held in the Lowig-Jackson private family archive, Sydney.

### Katharina Löwig's wartime story

Jindřich Löwig's mother Katharina Löwig did not have an easy time either during the war. As German Catholics,<sup>104</sup> she and her husband applied for recognition as Czech nationals in the autumn of 1938. She began to call herself Kateřina Löwig (the Czech version of her name). After the proclamation of anti-Jewish laws, she refused to divorce her husband and hoped that this would save him and her son from being transported to ghettos and camps. This however put her into a difficult position, which she faced bravely. During the war she variously lived with her husband and her son.<sup>105</sup> To save her Jewish husband from being transported to Terezín (Theresienstadt Ghetto), she applied for German citizenship on 20 November 1941, which would automatically place her under German jurisdiction. On 5 December 1942 she was given a German identification card and her name was recorded in the Prague register of German residents.<sup>106</sup>

In the autumn of 1943 the Prague Gestapo began investigating her right to citizenship under the Regime.<sup>107</sup> On 17 June 1944 German officialdom revoked her German citizenship and from that moment Kateřina Löwig had to report again as a Czech citizen and register under Protectorate jurisdiction.<sup>108</sup> When the war ended, in May 1945 she was arrested as a German and imprisoned at

<sup>104</sup> She clearly espoused German nationality during the 1930 census. We note she was brought up in Liberec, only went to German schools, and German was her mother tongue, as her mother Theresa Lüftner was German. Even though her father Václav Chvojka was Czech, she never learned to speak Czech well and all her explanations to authorities were in German. See for example the record of her interrogation by police of 15 October 1948, stored in the Criminal Proceedings under the Small Decree Collection, under signature 36-54347, Prague City Archives.

<sup>105</sup> Until 10 May 1941 she lived at the same addresses as her husband; from 10 May 1941 to 4 May 1942 she lived with her son at Building No. 1479, Břevnov, Prague XVIII; from 4 May 1942 to 8 August 1942 she consistently reported living with her husband at 41a Korunní, Prague XII; from 3 October 1943 until 26 September 1944 at 4 Waldhausergasse, Prague V. From 26 September 1944 she lived again with her son at Building No. 1479, Břevnov, Prague XVIII. All address information was taken from the card Kateřina Löwigová held in Collection PŘ II – EO Police Directorate, Prague II – Residents Register, National Archives of the Czech Republic.

<sup>106</sup> See for example *Výpis z dotazníku k zjištění něm. národnosti z roku 1945* [Extract from the form for identifying German nationality, 1945], held in the Criminal Proceedings under the Small Decree Collection, under signature 36-54347, Prague City Archives.

<sup>107</sup> See Edict of 13 December 1943 – I 2 and 445, which is reported in the report *An der Deutschen Staatsminister für Böhmen und Mähren – Abt St. in Prag* [To the German Minister of State for Bohemia and Moravia – Abt St. in Prague] produced by the Office the President in Bohemia – Reichsauftragsverwaltung – Prague XVI, Matthias-Braun-Pp. 11, A. Z.: I-10/d-171/44-JK/Ka of 17 June 1944, under signature 114-131-1, Record No. 76, Collection ÚŘP – AMV 114, Office of the Imperial Protectorate, Prague, Carton No. 129, National Archives of the Czech Republic.

<sup>108</sup> In the document of 17 June 1944 it states in German: *The top district official in Prague made a decision that the German citizenship awarded under the Regulation of 6 June 1941 to Katharina Löwig born 7 April 1881 in Scheles has been revoked.*

*I request the second copy of the questionnaire on your file be corrected or destroyed.* See record *An der Deutschen Staatsminister für Böhmen und Mähren* [To the German Minister of State for Bohemia and Moravia] – Abt St. in Prague prepared by the Office



the Convent in Břevnov. On the basis of an intervention by her son Jindřich Löwig, she was released.

### Anna Löwig's story

On 11 September 1926 in Liberec, Anna Löwig married Rudolf Epstein (1898–1977), originally of Turnov. On 2 August 1928 she left the Catholic Church and proclaimed her Jewish faith.<sup>109</sup> About her life in Liberec we have little information:

*Heinrich Löwig, engineer, born in 1874 in Chomutov, Chief Construction Superintendent in Liberec from 1907. Fled in November 1938. Daughter Anna married Rudolf Epstein in 1926, born in 1898 in Liberec. In September [1938] the couple emigrated to England with both their sons and a daughter, born 1928, 1930, and 1935 in Liberec.*<sup>110</sup>

Life in England during the war was difficult and for a time the family was separated, as described in the following account written by John Epstein in June 2011:

*My father who was too old to be in the army was drafted into cutting pit props in Cumberland. This was a reserved occupation as there was a shortage of pit props for the coal mines and of course a shortage of coal. Gitti and my mother started in a hostel in Broadstairs Kent which then, due to bombing in the south, moved first to Edmond Castle just north of Carlisle, Cumberland and then to Denbigh in Wales.*<sup>111</sup> *Anna was always part of the management and staff of the hostels.*

*Peter and I were initially evacuated to live with host families to avoid the risk of bombing in London and the south of England (as were many English children). After we had been with our English hosts, both Peter and I joined my mother and Gitti in the hostel at Edmond Castle, a large stately manor*

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of the President of Bohemia – Reichsauftragsverwaltung [Regime Order Administration] – Prague XVI, Matthias-Braun-Pp. 11, A. Z.: I-10/d-171/44-JK/Ka of 17 July 1944, under signature 114-131-1, Record No. 76, Collection ÚRP – AMV 114, Office of the Imperial Protectorate, Prague, Carton No. 129, National Archives of the Czech Republic. We note that the change of jurisdiction was recorded on 21 July 1944.

<sup>109</sup> See Birth Register VIN N11, Folder 340, Prague City Archives. It contains information about her change of faith, recorded and sent to Prague by the District Administration, Political Administration in Liberec on 2 August 1928 under No. 370/28-M. See also Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice where the marriage and her change to Jewish faith were recorded on the basis of File AII 493/27, held in Liberec. See also Löwig family registration card, Liberec Resident Register, State District Archives Liberec.

<sup>110</sup> Isa Engelmann: *Židé v Liberci. K dějinám obyvatel města pod Ještědem* [Jews in Liberec. History of Residents in the City below the Ještěd], Liberec, 2007, p. 121.

<sup>111</sup> Information about the history of these buildings during WWII and the lives of Czechoslovak migrants can be found on the webpage [http://webspaces.webring.com/people/fc/czechandslovakthings/WW2-CRTF\\_hostels.htm](http://webspaces.webring.com/people/fc/czechandslovakthings/WW2-CRTF_hostels.htm).



house with very big grounds, Peter some time before me. The next move was to Denbigh.<sup>112</sup>

After this Peter and I attended the Czech boarding school at Abernant Lake Hotel, Llanwrtyd Wells, Wales. It had been requisitioned during the war as a Czechoslovak State School (known in Czech as a “gymnasium” for refugee children aged from 11 to 18. Unfortunately most of the lessons were in Czech which did not help our education although Peter did much better than I. However the hotel had very nice grounds including a boating lake and a trout stream, which we made the most of in our spare time. The school is famous for catering to the Czech children of the “Kinder Transport” organised by Sir Nicholas Winton. All in all we children had a very comfortable war and a great adventure, of course for our parents it must have been horrific arriving almost penniless in a country where they only had very basic knowledge of the language.<sup>113</sup>

However towards the end of the war our father moved back to London and managed to get a job selling “skivers”, a cheap leather which was not licensed. Most other leather and most commodities were under licence and one could only trade in them if one was an established trader. After a relatively short time Pa found that he could do this himself rather than work for someone else and formed the company called Rudston Leather Trading Co. Ltd (the name Rudston came from RUDolf epSTEIN). A made up name, however at some stage someone from Yorkshire phoned to ask whether we were related as that was their name!

Pa soon was earning a reasonable living and rented a house I believe at the end of 1942 or 1943 and then firstly Ma and Gitti came to London, followed by Peter, and then me. Gitti did not stay long as she was sent to a boarding school and only came home in the holidays. By this time the bombing of London had long since stopped although the “doodle bugs” V1 and later Rockets V2’s

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<sup>112</sup> The archived materials for the Denbigh Hostel include a *List of Residents in Denbigh Hostel*, prepared on 23 February 1942, which includes: *Children ... Epstein Margit (Date of Birth 26. 5. 1935), Hans (5. 8. 1930), Peter (26. 5. 1928). Supported up to the present by the Trust, but father has now obtained employment. Mr. Epstein is earning 4.0.0 pounds a week and has been requested to maintain his children at Denbigh, but so far he has not refunded anything. ... Adults ... Epstein Anna (Date of Birth 28. 10. 1906). Working as children’s help in the hostel. Earning 1.5.0 pounds a week.* See Internet addresses: [http://webspaces.webring.com/people/fc/czechandslovakhthings/images/Documents/Denbigh1\\_IF40.jpg](http://webspaces.webring.com/people/fc/czechandslovakhthings/images/Documents/Denbigh1_IF40.jpg) and [http://webspaces.webring.com/people/fc/czechandslovakhthings/images/Documents/Denbigh3\\_IF40.jpg](http://webspaces.webring.com/people/fc/czechandslovakhthings/images/Documents/Denbigh3_IF40.jpg).

<sup>113</sup> For the history, organisation, activities and life in Czechoslovak State Schools for refugee children in Great Britain see website <http://www.czechsinexile.org/places/abernant-en.shtml>. We note that, the British Committee for Refugees from Czechoslovakia was established in October 1938 to care for Czech refugees in Great Britain during the Second World War, and was able to use the Czech Refugee Trust Fund that was set up in July 1939. More details about its activities can be found at [http://sh1.webring.com/people/fc/czechandslovakhthings/WW2\\_crtf\\_origins.htm](http://sh1.webring.com/people/fc/czechandslovakhthings/WW2_crtf_origins.htm).

*occasionally fell on London. On the contrary I can remember watching the sky full of aeroplanes flying out in the early evening on bombing raids to Germany.*<sup>114</sup>

After the war the Epstein family lived happily and contentedly in London. The children, Peter (1928–2004), John (born 1930) and Gitti (born 1935) started their own families. Rudi Epstein died in 1977 and Anna Epstein died in 1987.<sup>115</sup>

*Rudi Epstein built a very successful and lucrative leather trading business, which, on Rudi's retirement, his son John ran with even greater success. Peter became an engineer who, with partner Rolf Schild, established SE Laboratories, a major producer for the medical and aerospace industries and Huntleigh Electronics. Both companies went public in the 1960s, in two of the London market's most successful initial public offerings of the time. Gitti studied Fine Arts and married rocket scientist Rudy Kennedy, who established major electronics firms and, on retirement, founded the Association of Claims for Jewish Slave Labour Compensation, leading the campaign in the 1990s that put pressure on German companies that had co-operated with the Nazi's "Extermination through Labour" program to admit responsibility and pay reparations to those who had been forced to work as slave labourers.*<sup>116</sup>

### **Jindřich Löwig's life from 1945 to 1947**

At the beginning of May 1945 Jindřich Löwig returned to Prague from the German labour camps and on 22 May he contacted Vladimír Kořínek to ask for help with finding a job in line with his qualifications. He envisioned a job as a secondary or tertiary school educator. A day later, he sent Kořínek his Curriculum Vitae and list of 11 publications. Vladimír Kořínek looked into all the possibilities and on 29 May 1945 informed Löwig of some obstacles which Löwig had clearly not foreseen:

*... unfortunately it really is as I suspected when we last talked. Habilitation matters [qualification for teaching at universities] are currently not being processed, and hence it is not possible to recommend you as Teaching Assistant until questions relating to your nationality and citizenship are sorted out, even though I have no doubt that these matters will eventually be resolved in your favour. So it would probably be best if for now you were to seek employment as a mathematician in insurance firms or in industry.*<sup>117</sup>

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<sup>114</sup> Email written by John Epstein in June 2011.

<sup>115</sup> Details of Epstein family members are in materials held in Lowig-Jackson private family archive, Sydney.

<sup>116</sup> See materials held in Lowig-Jackson private family archive, Sydney.

<sup>117</sup> Copy of Vladimír Kořínek's letter to Jindřich Löwig of 29 May 1945, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

After the war the Beneš Decrees were proclaimed, which regulated the status of citizens of German and Hungarian nationality, collaborators and advisors.<sup>118</sup>

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<sup>118</sup> The following were the core documents governing the status of Germans and Hungarians in post-war Czechoslovakia:

On 23 November 1944 the Czechoslovak Government-in-Exile gave the Allied Powers its *Proposal for the Expulsion of Germans from Czechoslovakia*, which requested the Allies to accept into Germany those Czechoslovak citizens deprived of citizenship because they had accepted citizenship of enemy countries. The deportation was to affect 1,600,000 German minority residents.

On 19 May 1945 President Edvard Beneš accepted the *Decree concerning the invalidity of some property-related transactions effected in the period of "non-freedom" and concerning the national administration of property assets of Germans, Hungarians, traitors and collaborators and of certain organizations and institutes* (No. 5/1945). It defined the term "unreliable persons" as a basis for deporting people with German or Hungarian nationality and also those who promoted activities against Czechoslovak national independence, sovereignty, defence and security. 1930 census data was used in determining the nationality of Germans and Hungarians, as well as any evidence of participation in political parties and associations of German or Hungarian nationals.

On 19 June 1945 the President of the Republic signed the *Decree concerning the punishment of Nazi criminals, traitors and their accomplices and concerning Extraordinary People's Courts* (called *The Great Retributions Decree*, No. 16/1945), which allowed for prosecution of war criminals and collaborators.

On 21 June 1945 the President of the Republic signed the *Decree concerning the confiscation and expedited distribution of agricultural properties of Germans, Hungarians, as well as traitors and enemies of the Czech and Slovak nations* (No. 12/1945), which allowed immediate confiscation of land without compensation. Germans and Hungarians actively involved in anti-fascist resistance did not have their land confiscated. Exceptions were decided by peasant commissions of district national committees.

On 17 July 1945 the President of the Republic signed the *Decree concerning the unified management of domestic settlement* (No. 27/1945), which added to the *Decree concerning the settlement of Czech, Slovak or other Slavic farmers on the agricultural land of Germans, Hungarians and other enemies of the state* (No. 28/1945) of 20 July 1945. Both of these regulated settlement not only in border areas.

On 3 August 1945 the President of the Republic signed the *Decree concerning Czechoslovak citizenship of persons of German and Hungarian nationality* (No. 33/1945). This was based on the premise that persons of German and Hungarian nationality remained Czechoslovak citizens throughout the war and only on the basis of this decree their citizenship was revoked on 10 August 1945, which resulted in their becoming foreigners, making it possible to arrange deportation in accordance with agreements reached at the Potsdam Conference held from 17 July to 2 August 1945. We note that the decree defined those whose Czechoslovak citizenship remained unchanged as well as those who were permitted to reapply for Czechoslovak citizenship and did not have to respond to expulsion orders until their citizenship was decided. In particular, German and Hungarian persons who were able to demonstrate their loyalty to the Czechoslovak Republic could remain citizens. According to a directive of the Ministry of Interior this related to persons who were, for political or racial reasons, imprisoned in a concentration camp or prison, were persecuted for their loyalty to the Czechoslovak Republic or their political conviction, actively engaged in anti-Nazi resistance and the struggle for the liberation of Czechoslovakia, served in Czechoslovak or allied units during the war or actively engaged in domestic resistance, and were not members of the SS, SA, SDP or NSDAP or any other Nazi organisations. Loyalty to the state was also taken into consideration, as well as consequent political activities abroad and financial support of the Resistance. German and Hungarian nationals were also allowed to keep their Czechoslovak citizenship where they demonstrated that family members were killed for their anti-fascist convictions or died in concentration camps. The Decree also applied to Czechs and Slovaks,

The fact that the Löwig family had opted for German nationality in the 1930 census was not in their favour. Jindřich Löwig, tutor,<sup>119</sup> and Kateřina Löwig, retiree without assets, had to prove their national reliability. This is illustrated, for example, in the letter which Löwig wrote in Czech to Kořínek on 16 June 1945:

*Honourable Professor*

*Thank you belatedly for your letter of 29 May 1945. Since then I have checked with the Ministry of Education and Public Awareness about employment possibilities at the local university. I was told that there are no political obstacles and they encouraged me to apply for habilitation. Before I actually do this, I shall speak with the dean of the Faculty of Science. I am thinking of requesting*

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who during the war sought German or Hungarian citizenship, unless they were forced by coercion or by special circumstances. We note however that the Ministry of Interior determined citizenship on the basis of assessments by special committees. At the same time it was emphasised that decisions would be made with sensitivity in cases where partners and dependent children of Czechoslovak citizens applied to regain citizenship.

On 25 October 1945 the President of the Republic signed the *Decree concerning confiscation of enemy property and concerning national renewal funds* (No. 108/1945) through which movable and immovable property of legal entities could be confiscated without compensation (for example, the German Empire, the Kingdom of Hungary, the NSDAP, German and Hungarian public corporations, political parties, legal entities and foundations), persons of German and Hungarian nationality (with the exception of those who were able to demonstrate they were loyal to the Czechoslovak Republic), and traitors and collaborators.

On 20 November 1945 the Allied Control Council approved the *Plan for the transfer of Germans* into the separate German occupation zones. We note that organised deportation officially began 25 January 1946, with the main wave completed by 1 November 1946. There were further deportations in the first half of 1947. In the following years further small groups of Germans left to reunite with families.

All the decrees were ratified on 5 March 1946 (that is, retrospectively ratified) by the *Provisional National Assembly* under constitutional law No. 57/1946

For more, see J. Kuklík: *Mýty a realita takzvaných Benešových dekretů. Dekrety prezidenta republiky 1940–1945* [Myth and Reality of the Beneš Decrees. Decrees of the President of the Republic 1940–1945], Prague, 2002; V. Pavlíček: *O dekrettech prezidenta republiky* [On the Decrees of the President of the Republic], in *Právní aspekty odsunu sudetských Němců* [Legal Aspects of the Deportation of Sudeten Germans], UMV, Prague, 1995, pp. 29–55, <http://www.psp.cz/docs/laws/dek/> (Dekrety prezidenta republiky Edvarda Beneše a související zákony [Decrees of President of the Republic Edvard Beneš and related Laws]), <http://www.mzv.cz/dekrety> (Druhá světová válka a její důsledky [The Second World War and its Outcomes] – server Ministerstva zahraničních věcí ČR [Ministry of Foreign Affairs of the Czech Republic]), [www.zasvobodu.cz](http://cs.wikipedia.org), <http://cs.wikipedia.org> (Benešovy dekrety), [http://en.wikipedia.org/wiki/Bene%C5%A1\\_decrees](http://en.wikipedia.org/wiki/Bene%C5%A1_decrees) (The Beneš Decrees). Regarding the deportations also see T. Staněk: *Odsun Němců z Československa 1945–1947* [The Deportation of Germans from Czechoslovakia], Academia – Naše Vojsko [Our Troops], Prague, 1991 – information about Jews with German nationality is on pp. 161–165, 339–345.

<sup>119</sup> In Report No. 66 301/47, National Security Directorate in Prague (Section. – V. – State Security, Section – C/1) of 10 December 1947, written as a request to the Provincial School Board No. R-2.972/5 ai 1947 of 4 August 1947 about the verification of Löwig, in light of the submission of his claim for redress, it states: ... *Löwig is without assets and from 1938 earns 2000 crowns/month as a private mathematics, physics and chemistry teacher*. See Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

*that my habilitation proceedings be carried out outside of the new Habilitation Act section 13 clause 3 and section 14 clause 3 and the Habilitation Regulation, or that, at minimum, I might be exempted from attending a colloquium under section 12 clause 1 of the Habilitation Regulation. I beseech you, honoured professor, not to stand in the way of my request.*

*I remain yours loyally,  
Jindřich Löwig.<sup>120</sup>*

Vladimír Kořínek vowed that he would support a simple transfer for the purpose of renewing Jindřich Löwig's habilitation procedures, but he stressed it was necessary to sort out any citizenship issues. In the Pardubice home jurisdiction records, the following detailed notes were written by an official in 1945, documenting Löwig's attempt to gain citizenship:

*Jindřich Löwig provided M.N.V Evidence No. 4007 for Prague XVIII of 21 August 1945, which confirmed his national and political reliability and that to date no evidence had been found to the contrary. – see file A2937/45.<sup>121</sup>*

It was not possible to find file ST 1128/45 containing information about Löwig's state citizenship. The protocol archived in the Prague City Archives shows that Löwig lodged his application on 28 August 1945 and then relevant documents were sent to the Ministry of Interior, the National Registrar of National Security and the Office of the National Committee. On 18 November 1947 the Ministry of Interior file was closed off and transferred to the District Council of Prague V.<sup>122</sup> From correspondence with Vladimír Kořínek

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<sup>120</sup> Lowig's letter of 16 June 1945 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>121</sup> Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>122</sup> The Security Forces Archive holds a record in connection with J. Löwig (Reg. No. 12 033) in Volume No. 20 884 (a so-called volume management record, First Administration, Ministry of the Interior (Main Intelligence Administration)) and Volume No. AS 2763 was discarded. On 31 October 1966 Captain Valenta of First Administration, Ministry of the Interior (15<sup>th</sup> Department) wrote about the discarding:

*A study of the materials found them to be a volume of diverse operational correspondence containing notes on emigration, passport issues, a repatriation group in Germany, the expulsion of people from Czechoslovakia, personal matters of individual ZU and one off screening of various persons. Most of the materials are from 1947 and 1948. In essence, these are outdated materials that in the long run are of little value.*

*I recommend that the whole volume be discarded and that the people mentioned therein be removed from the register.*

*Record: Discard the whole volume and remove persons therein from the register.*

The discarding took place on 22 November 1966.

and Eduard Čech<sup>123</sup> in the summer of 1947 it seems that Löwig obtained Czechoslovak citizenship at the end of June 1947.<sup>124</sup>

Löwig later wrote about the work he did after being freed:

*After the end of the war, I earned some money by giving private lessons in mathematics.*<sup>125</sup>

Even during this difficult period, mathematics was still a priority for Jindřich Löwig and, in particular, he kept alive the memory of his teacher, colleague and friend Ludwig Berwald who had handed him mathematical manuscripts for safekeeping before being transported to the Łódź Ghetto. Löwig kept them and, after the war, arranged for them to be published, as recorded in the following note he wrote in English:

*In 1939 Berwald lost his position as a professor of mathematics at the German University of Prague because he was regarded as a “non-Aryan”. On the 26th of October, 1941 he was deported to Łódź (Litzmannstadt) Ghetto. There he died in February or March, 1942. Before he left Prague he handed me five manuscripts of mathematical papers which he had composed, but had not been able to publish during the war. Two of these manuscripts are printed here.*<sup>126</sup>

In May 1946 Löwig sent two of Berwald’s articles to the editor of the journal *Acta Mathematica* with the above preface attached. At the same time he also

<sup>123</sup> Eduard Čech (1893–1960) was an internationally renowned Czech mathematician. He dealt mainly with projective and differential geometry and topology.

<sup>124</sup> Draft of Kořínek’s letter addressed to E. Čech on 7 July 1947, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic. See also *Záznam Národní bezpečnosti* [Record of National Security] attached to File No. 68648/45 about the Czechoslovak citizenship of Dr. Jindřich Löwig, which refers to a meeting on 13 September 1946 held in the building of the Prague Magistrate with the goal of simplifying and speeding up the handling of Löwig’s citizenship case. This was placed on record by State Security on 21 October 1946. For the sake of completeness we add that the Magistrate of the City of Prague again asked the National Security Directorate to investigate Löwig’s integrity on 19 November 1946. See also *Zpráva Národní bezpečnosti* [Report of National Security] of 10 December 1947, which states that Dr. Jindřich Löwig obtained Czechoslovak state citizenship on 20 June 1947. All the above documents are held in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

<sup>125</sup> See *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, Lowig-Jackson private family archive, Sydney.

<sup>126</sup> See Löwig’s first footnote to Berwald’s article *Verallgemeinerung eines Mittelwertsatzes von J. Favard für positive konkave Funktionen*, *Acta Mathematica* 79(1947), pp. 17–37. We note that the information Löwig included about the end his colleague’s life was incomplete. Ludwig Berwald and his wife Hedwiga Berwaldová were required to front up on 22 October 1941 at the Trade Fair Palace in Prague, where Jews were being gathered for the third transport to Łódź. 1000 people were deported as part of this Transport ‘C’, of whom only 64 survived at the end of the war. Ludwig Berwald was given transport number 2793/816 and his wife number 2793/817. Hedwiga Berwaldová died in inhumane living conditions on 27 March 1942 and Ludwig Berwald died on 20 April 1942. Regarding Berwald’s life and work see M. Pinl: *In memory of Ludwig Berwald*, *Scripta Mathematica* 27(1964), pp. 193–203 and M. Pinl: *Památce Ludwiga Berwolda*, *Časopis pro pěstování matematiky* [In memory of Ludwig Berwald, Journal for the Cultivation of Mathematics], 92(1967), pp. 229–238.



sent another two of Berwald's articles to the editor of *Annals of Mathematics*, with a similar note about Berwald's fate. All four articles were published in the following year.<sup>127</sup>

It is very likely that the fifth manuscript was Berwald's article *Über die Beziehungen zwischen den Theorien der Parallelübertragung in Finslerschen Räumen*, which was published earlier in 1946 in the Dutch journal *Indagationes Mathematicae*.<sup>128</sup> Records show it was received by the editorial staff on 25 May 1946, but there are no details about who submitted it.<sup>129</sup>

### Kateřina Löwig's life from 1945 to 1947

Between 1945 and 1947 Kateřina Löwig was in an unenviable position. As shown in the materials stored in the Prague City Archives, she was repeatedly investigated under the so-called "Small Decree".<sup>130</sup> In 1945 she had to complete a form to determine German citizenship, but she succeeded in proving that: her husband was tortured by the Gestapo, her German citizenship was revoked by the Regime, she never showed any sympathy for the Regime, she was not politically active and was not a member of any fascist parties, she never denounced her country of birth, none of her property was inherited from traitors

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<sup>127</sup> See L. Berwald: *Verallgemeinerung eines Mittelwertsatzes von J. Favard für positive konkave Funktionen*, *Acta Mathematica* 79 (1947), pp. 17–37; *Über Haars Verallgemeinerung des Lemmas von Du Bois-Reymond und verwandte Sätze*, *Acta Mathematica* 79 (1947), pp. 39–49; *Über Systeme von gewöhnlichen Differentialgleichungen zweiter Ordnung deren Integralkurven mit dem System der geraden Linien topologisch äquivalent sind*, *Annals of Mathematics* 48 (1947), pp. 193–215; *Über Finslersche und Cartansche Geometrie IV. Projektivkrümmung allgemeiner affiner Räume und Finslersche Räume skalarer Krümmung*, *Annals of Mathematics* 48 (1947), pp. 755–781.

<sup>128</sup> See *Indagationes Mathematicae* 8 (1946), pp. 401–406. In 1946 this journal still also had another name, year numbers and page numbers – Koninklijke Nederlandsche Akademie van Wetenschappen 49 (1946), pp. 642–647.

<sup>129</sup> The final work by Berwald was prepared for publication by P. Funk in 1948; it was published a year later under the name of *Obere Schranken für das isoperimetrische Defizit bei Eiliniën und die entsprechenden Größen bei Eiflächen* (*Monatshefte für Mathematik* 53 (1949), pp. 202–210). In the first footnote, P. Funk stated: *L. Berwald was deported from Prague to Lodz on 20 October 1941. He died on 20 April 1942. He gave me this work shortly before his deportation as his farewell.*

<sup>130</sup> See *Výpis z dotazníku k zjištění něm. národnosti z roku 1945* [Extract from the form for identifying German nationality in 1945], which is stored in Collection Trestní řízení podle malého dekretu [Criminal Proceedings under the Small Decree], under signature 36-54347, Prague City Archives. We note that on 27 October 1945 the President of the Republic signed the *Decree concerning punishment of certain offences against national honour* (No. 138/1945) otherwise called the *Small Retribution Decree* or *Small Decree*. It was issued in order to punish occupiers, collaborators and traitors for so-called "less serious offences", than those assessed by the extraordinary people's courts under the *Great Retribution Decree*. It was especially concerned with any active membership in Nazi and fascist parties and organisations, promotion of fascism and Nazism, abuse of Occupation conditions and intelligence for one's personal gain or advantage, defamation of the Allies, the Czechoslovak Republic and their representatives, regular voluntary contact with the invaders and renegades (i.e. voluntary acceptance of German or Hungarian nationality). This decree fell within state law and it was implemented by *National Committees*.

or collaborators, she was receiving a small pension because of her husband, there were no complaints about her from her Czech neighbours.

As a result, she was not listed for displacement. In the Pardubice Resident Register the following note was recorded as part of lengthy official 1945 documentation, detailing her attempt to gain Czechoslovak citizenship.

*The widow lives at Building No. 1479/IV, Břevnov in Prague XVIII (see file V941/45). She provided evidence that she is listed in the Prague Register as a Czech national.*<sup>131</sup>

On 23 June 1947 Kateřina Löwig obtained verified certification of Czechoslovak citizenship issued by the Magistrate of Prague under No. IV. St. 3287/45/Pe.<sup>132</sup> In spite of this she still underwent an interrogation in 1948, the documentation of which is in the Prague City Archives. It states:

*Interrogation of Accused 15.10.1948*

*Katharina Löwigová, Building No. 1479, Bezejmenná Street, Prague XVIII, 7 April 1881, Scheles (Žihle), Žatec.*

*State citizenship: Czechoslovak, Domicile: Municipality of Pardubice, Nationality provided: Czech, widow, 2 children, pensioner.*

*In 1930 I took on German nationality. I was brought up in Liberec for about 30 years, where I lived with my parents (father Czech – Chvojka, mother German). I went to German schools and my mother tongue is German. I applied for citizenship under the German Regime because I understood it would help my husband who was Jewish. In spite of this he died in 1944 in Theresienstadt.*

*She has an Identity Card No. 18.371 issued by the Directorate of National Security on the 17.6.1948. From 1944 she reported as a Czech national, on the basis of her father's nationality.*

*Note: Speaks very poor Czech; most of her explanations were in German.*<sup>133</sup>

A day later, the Investigations Commission prepared a short memorandum No. XVIII/I No. 54.347 which reads:

*This is a person of German origin, upbringing and nationality to whom the Decree does not apply.*<sup>134</sup>

<sup>131</sup> Pardubice Resident Register, AM Pardubice Collection, Carton 633, State District Archives Pardubice.

<sup>132</sup> See *Žádost za všeobecnou občanskou legitimaci* [Request for general legitimation of citizenship], which K. Löwig made to the National Security Directorate in spring 1948. She was issued with card number 18.371 on 17 June 1948 which she picked up on 21 June. From the documents it is evident that she was at that time still living at Bezejmenná Street, Building No. 1479, Břevnov in Prague XVIII. See Kateřina Löwigová Folder, under signature L 1482/21, Carton No. 6653, Collection PŘ 1941–1951, Police Directorate, Prague II – General Registry 1941–1950, National Archives of the Czech Republic.

<sup>133</sup> See *Zápis výslechu* [Interview Minutes], stored in the Criminal Proceedings under the Small Decree Collection, under signature 36-54347, Prague City Archives.

<sup>134</sup> See *Zápis usnesení* [Written Resolutions], stored in the Criminal Proceedings under the Small Decree Collection, under signature 36-54347, Prague City Archives.

In 1947 Jindřich Löwig and his mother Kateřina Löwig did indeed succeed in obtaining Czech citizenship, but only as second class citizens; they were still considered suspicious German persons and had difficulty obtaining identity cards, travel documents and employment.

### Jindřich Löwig's Emigration

According to his correspondence with Vladimír Kořínek and Kořínek's correspondence with Eduard Čech, in 1947 Jindřich Löwig tried to obtain positions at the Faculty of Science of Charles University and at the newly established Faculty of Education at the Palacký University in Olomouc. On 7 July 1947 Kořínek wrote to Čech:

*Dr Löwig visited me and told me in essence the following: He has now obtained Czechoslovak citizenship. Furthermore, he told me confidentially that he has been offered a position at the University of Greifswald. However he would rather be at the Olomouc Faculty. Nevertheless he wants to have a look at Greifswald and I advised him to do so. He asked me to keep quiet about Greifswald. He is afraid it could have a negative influence at Olomouc. I am writing to you anyway, to keep you informed and so that you may provide further information. Of course I would be most unhappy if, as a result of this communication, someone were to say to him "I hear you've got an offer from Greifswald".*<sup>135</sup>

On 9 July 1947 Eduard Čech responded:

*Thank you for the information about Dr. Löwig. I'll wait until Novák*<sup>136</sup> *arrives, and then I'll let him know. Personally, I still have grave doubts about whether someone who appears to be German is suitable for our teaching faculty, but I guess I shouldn't get too concerned about this.*<sup>137</sup>

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<sup>135</sup> Draft of Kořínek's letter addressed to E. Čech on 7 July 1947, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>136</sup> Josef Novák (1905–1999) was a Czech mathematician who dealt with topology, probability, statistics and genetics. In 1946 he was appointed associate Professor of Mathematics at the Science Faculty of Masaryk University in Brno (with retroactive effect from 1945); in 1946 to 1948 he also lectured at the Faculty of Education in Olomouc.

<sup>137</sup> Čech's letter addressed to Kořínek on 9 June 1947, Vladimír Kořínek Collection, Carton No. 1, Eduard Čech Folder, Archive of the Academy of Sciences of the Czech Republic. We note that Čech was not the only one who was openly against allowing German teachers teaching in Czech schools. In his letter of 23 October 1973 written to Václav Havel, Associate Professor of Mathematics, Faculty of Science in Brno, Kořínek wrote: ... *Naturally, after the war, in spite of being German, he was not deported, but stayed in Prague, but Prof. Bydžovský was definitely against any Germans getting positions in tertiary schools, even if they were anti-fascist and democrats. I did not agree with Prof. Bydžovský about this. Rather it was my view that they ought to get some positions with us. (Löwig was not the only case.) Of course, there was nothing I could do about Bydžovský. That is why Löwig was forced long before February to leave Czechoslovakia and look for a job abroad.* (Kořínek's draft letter, Vladimír Kořínek Collection, Carton No. 1, Václav Havel Folder, Archive of the Academy of Sciences of the Czech Republic.)

Löwig's situation was not resolved during the holiday period, as is evident in the long letter he sent to Kořínek on 3 September 1947, where he describes the problems he encountered in trying to make the trip to Greifswald:

*Honourable Professor*

*When I told you two months ago, that I had been offered a position as associate professor of mathematics at the university in Greifswald, you advised me to go there personally to check on the conditions before accepting the position. Getting permission for this trip is however proving to be quite onerous. First it took two months to get a passport. Meanwhile I had requested the Philosophy Faculty at the Greifswald University to arrange an endorsement or recommendation from the Soviet Office in Germany, on which basis our local Soviet Consulate could then approve my travel to and from the Soviet occupied part of Germany. The Faculty tried to do this through the German Education Office in Berlin. But they were told that first I have to apply for permission myself to our local Soviet Consulate who would in turn make a request of the Head Office in Berlin which would then request the assistance of the German Office; then the response would come back via the same channels. In order to hand in the above-mentioned request at the local Soviet Consulate, I need a recommendation (a so-called verbal notice) from our Ministry of Foreign Affairs. Today I spoke with the duty officer at the Ministry, a Mr Beneš. However he refused to issue me with a verbal notice, his reason being that he believed the Soviet Office would refuse my request.*

*Back when I spoke with you, you mentioned that, in the eventuality that I ran into difficulties, you might be able to turn to someone you know at the Ministry of Foreign Affairs. I therefore today humbly request you to do this, and that you please not forget to mention that at this stage I do not wish to move to Greifswald, but rather that it is only a matter of my going there to negotiate with the University. (I might add that I have the Greifswald University's Rector's written undertaking that my trip is necessary for service and business reasons.)*

*I would be able to get a travel pass quite easily if I were to say that I was accepting the lecturing position unconditionally and that for that reason I want to move to Greifswald and live there. But I would only do that if I had no alternative. Perhaps you are aware, that the Olomouc University asked the Faculty of Science here in Prague for the security check that was done on me. According to what the dean told me, this is yet to be processed by the new dean, Professor Jarník. If as a result, I was offered a lecturing position in Olomouc, I would not go to Greifswald. (Of course the same applies if I was offered the position in Australia for which I have applied.) I am wary of accepting the position in Greifswald, because I fear that if I did, I might never get out of the Soviet occupied zone.*

*Thank you in advance for your kind assistance.*

*Yours*

*Jindřich Löwig.*<sup>138</sup>

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<sup>138</sup> Löwig's letter of 3 September 1947 addressed to Vladimír Kořínek, Vladimír Kořínek

Vladimír Kořínek willingly assisted Jindřich Löwig, as is evident from the content of his letter of 6 September 1947, in which he asks Löwig to visit him in the next couple of days, and to bring along his list of works and publications, a resume – with emphasis on what befell him during the war – and his professional works. He promised to help Löwig gain approval for travel to Greifswald and to support his application for a position in Australia.<sup>139</sup> Over the following days, he contacted his connection at the Ministry. However in the end things turned out differently – the contact had been removed from the office and Jindřich Löwig decided to ask the Soviet Consulate in Prague directly without the help of the other offices.<sup>140</sup> It is not clear whether Löwig really handed in his application, because there was a change in his circumstances – he was given permission to visit his sister Anna Epstein in London.<sup>141</sup> He let Kořínek know of this in his letter of 26 October 1947:

*Respected Professor*

*As you will see from this letter, I am currently in London. I have been here since 21 September 1947 visiting my sister. On 22, 23, and 24 October I lectured at Cambridge University on lattice theory. Now I will have to decide whether to return to Czechoslovakia or extend my stay in England for as long as possible. For this reason I would be very appreciative if you could please let me know if the Faculty of Science at Charles University prepared the reference about my work, as was requested by the Rector's Office of Palacký University in Olomouc.*

*Thank you in advance for your kind response*

*I remain forever yours humbly*

*Jindřich Löwig.<sup>142</sup>*

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Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>139</sup> Kořínek's draft letters of 6 September and 11 September 1947 addressed to Löwig, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>140</sup> Löwig's letter of 18 September 1947 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>141</sup> The goal of his trip was not just to visit his sister and her family. Jindřich Löwig wanted to find a suitable job and write the state examination in English. We note that obtaining a passport and travel permit was not an easy matter, as evidenced by, for example, Excerpt from No. 165192/47 kur. (Prague, 8 July 1947):

*... The District Board, Břevnov, Prague XVIII – 10 June 1947, No. 11818/47 Bř. indicates that the herein named reported as a German national in 1930 and during the Occupation was a professor at a German university, and the processing of his application to keep his Czechoslovak state citizenship has not been completed. The District Council cannot confirm the comments for security reasons.*

*/Application for passport*

*/For home archive*

*/Retain*

*Tatíček*

See Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

<sup>142</sup> Löwig's letter of 26 October 1947 addressed to Vladimír Kořínek, Vladimír Kořínek

Vladimír Koříněk followed up what was happening with Löwig's request and let him know via a letter to London dated 16 November 1947. It turned out that the task had been passed on to the University Commission led by Vojtěch Jarník<sup>143</sup> and that the Commission was more or less waiting for "a directive from higher levels". Meanwhile however the Commission obtained memorandum No. A 253.384/47-V/R from the Ministry of Education and National Awareness, which stated that Löwig's request was "without precedent":

*In a letter dated 13 May 1947 No. B-1550-18/11-IV/1, the Ministry of Interior informed us that, on the basis of existing precedents, it definitely and without exception insists that it is unacceptable to employ German nationals in public service.*

*This stance applies without exception even in the field of education.*

*As a result, the Commission is of the opinion, that any negotiations about your appointment at Olomouc have become devoid of purpose.<sup>144</sup>*

In spite of this Jindřich Löwig did not stay in London as might have been expected, but returned to Czechoslovakia. He applied for an emigration pass and intended to arrange matters relating to his native homeland without losing his citizenship and the ability to return to Prague where his mother was still living. He accepted the offer of a mathematics lecturing position at the University of Tasmania in Hobart, Australia. On 8 January 1948 he departed for Australia,<sup>145</sup> as referred to in Koříněk's letter to Löwig of 19 January 1948.

#### *Respected Doctor*

*I'm attaching the examination schedule of the University of Tasmania and thank you for kindly lending it to me. Please accept my apologies for holding on to this for so long. If we do not see each other again, I wish you a good trip and much success.<sup>146</sup>*

For the sake of completion, we add that in the summer of 1947 Löwig submitted a request to the District School Board in Brno for redress under Presidential Decree No. 53/1945 Sb. On 4 August 1947 the Brno School Board,

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Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>143</sup> Vojtěch Jarník (1897–1970), Czech mathematician, focused primarily on number theory and mathematical analysis. He was also interested in the history of mathematics, in particular the work of Bernard Bolzano (1781–1848).

<sup>144</sup> Koříněk's draft letter of 16 November 1947 addressed to Löwig, Vladimír Koříněk Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>145</sup> According to National Security materials in Prague, Löwig left for Australia on 8 January 1948. See criminal file stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague. We note that from the time he arrived in Australia he used the name Henry Francis Joseph Lowig.

<sup>146</sup> Koříněk's draft letter of 19 January 1948 addressed to Löwig, Vladimír Koříněk Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.



in letter No. R 2.972/5 ai 47, turned to the National Security Directorate with a request to review Löwig's case.

*Professor Dr Jindřich Löwig, born 29 October 1904, domiciled at Building No. 1479, Břevnov, Prague, has requested compensation in accordance with the Decree of the President of the Republic No. 53/1945 Sb. He states that in 1930 he registered his nationality as German, but during the German Occupation he registered as a Czech national.*

*To make it possible to conclusively decide his request for compensation, we seek a thorough examination of his demeanour during the First Republic and during the Occupation, the reasons for his shift to Czech nationality, and his asset ownership, income and health.*

*Prague addresses listed were:*

*1/ 9 Pod Slovany, Prague II,*

*2/ 7 Pštrossova, Prague II,*

*3/ 1 Kozí, Prague I,*

*4/ 8 Tylovo nám., Prague XII,*

*5/ 7 Krakovská Prague II,*

*6/ Buildings No. 478 and 908, Bubeneč, Prague.*

*Besides this he lived in 13 Robert Blum Street, Liberec. In conclusion, we request the basis on which national reliability of the above-mentioned was designated and certified.*

*On behalf of the Lands Education Council  
Kubíček (signed by hand)<sup>147</sup>*

On 10 December 1947, after lengthy investigation, the Directorate of National Security in Prague (Section – V. – State Security, Section – C/1) answered the request for information, recapitulating the history of Löwig's personal history.

#### *Report*

*Dr Jindřich Löwig, private docent, born 29.10.1904 in Prague, resident of Nový Jičín, Czech nationality, single, Roman Catholic, son of Heinrich and Katharina née Chvoyka, domiciled in his own flat at Building No. 1479, Pod Marjánkou Street, Břevnov, Prague.*

*During the First Republic, specifically from 1930, –L– registered as a German national, taught in German grammar schools and was a lecturer at the German University in Prague until 29.9.1938. After that the Germans found out that under their rules he is a Jewish half-caste so they immediately dismissed him from the university. None of his previous neighbours complained or are complaining about Prof. –L–'s past behaviour. At the beginning of 1941, –L– was called to the then Land Office in Prague where the Germans gave him a written document saying that as a half-caste Jew he is not and is not allowed*

<sup>147</sup> See application stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

to be a German citizen, so Prof. –L– had to immediately apply for citizenship under the Protectorate. In relation to his application to the Czech authorities, he had to bring written documents to the former Land Office. According to the Decree of the President of the Republic, the whole family is Czech. Löwig is without property and from 1938 earned 2000 Crowns per month as a private docent in mathematics, physics and chemistry. He is healthy and the District Board for Břevnov, Prague XVIII issued him with certification of national reliability as a basis for resumption of Czech citizenship; furthermore, there was no punishment notice levied on –L– under the Presidential Decree nor on the basis of the existing and working documents provided, which –L– had had officially endorsed. He has a certificate of state citizenship from the main Prague Magistrate, No. IV-St-1128/45-Pe dated 20.6.1947.

Professor Dr Jindřich Löwig has now been in London, England for 2 months. He was invited there by English offices to complete university English language examinations. Now, on the basis of successful completion of these examinations, Löwig is to be appointed as a university lecturer either in the vicinity of London or in Hobart, Tasmania, Australia. As Löwig is fluent in Czech, German and English, the above mentioned position was offered to him by the English Education Office and now Löwig is in London deciding which position he will accept. When Löwig will return home is not even known to his mother.

Jos. Lochman

Criminal Inspector<sup>148</sup>

From further developments it would appear that Löwig did not get an emigration pass. He simply obtained a passport valid to 31 December 1949. He was meant to return to Czechoslovakia by that date at the latest or else renew his passport, obtain an emigration pass or otherwise regularise things with his native country.<sup>149</sup>

### **Katharina Löwig's emigration to England**

On 30 October 1948 Kateřina Löwig applied for a passport and paid the requisite fee of 1,000 Crowns, so she could move to England to live with her relatives.<sup>150</sup>

She had to present a range of documents: official identity card, citizenship certificate, birth certificate, marriage certificate, death certificate of spouse, housing application, approval by the Ministry of Social Welfare of her emigration, the British Embassy's commitment to grant a residency visa, confirmation of the Prague City Hall that she was not in possession of movable

<sup>148</sup> See report stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

<sup>149</sup> See criminal information stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

<sup>150</sup> See Kateřina Löwigová Folder, under signature L 1482/21, Carton No. 6653, Collection PŘ 1941–1951, Police Directorate, Prague II – General Registry 1941–1950, National Archives of the Czech Republic. We note that at her request it was recorded that her first application which she had lodged in August was lost, and that she had already paid the correct fee on 16 June 1948.

property received from Germans, Hungarians and collaborators, Internal Revenue Office verification that all tax obligations were settled, affidavit that she would seek neither an allocation of foreign currency nor permission to purchase tickets. In addition the bureau requested the approval of her emigration by the Czechoslovak National Bank in Prague, by the Prague XVIII District Council and the Administrative Commission of the District National Committee. At the same time searches were carried out of criminal files, indexes, the list of German citizens, the register of former German and Hungarian property, the files of the Directorate of National Security, etc.

All searches were found to be negative and so, on 10 November 1948 emigration pass No. 10262/48 was issued in the name of Kateřina Löwigo<sup>vá</sup> and sent to the Ministry of Social Welfare on 24 November 1948 to deliver it and finalise her emigration.<sup>151</sup>

At the end of 1948 Kateřina, from then once again calling herself Katharina Lowig, moved to London where she lived with her daughter Anna Epstein and her family until her death in 1962. Towards the end of her life she had difficulty breathing and tolerated poorly the then polluted London smog.

### Henry Lowig's career in Australia 1948 to 1957

Given the bleakness of his situation, Jindřich Löwig at first decided to accept the Greifswald offer but unforeseen events led to a different outcome about which he wrote in 1972:

*In 1947, some fellow-mathematician told me about an opening at the University of Tasmania, Hobart, Tasmania, Australia. This made me apply for the position although I had not read their advertisement. I did get that position, and eventually, I did take up duties as a Lecturer in Mathematics at the University of Tasmania in March, 1948. Effective 1st July, 1951, the University of Tasmania promoted me to the rank of Senior Lecturer.*<sup>152</sup>

And so in 1948 at age 43, Jindřich Löwig left for Australia and began for a third time to build a new life and career, almost out of nothing. From then on he began to call himself Henry Lowig, and hence is referred to as Henry Lowig from this point in this chapter. He became Lecturer in mathematics and in 1951 Senior Lecturer at the University of Tasmania in Hobart. We note that Lowig had perfect command of Latin, Greek, German and Czech and that during the war had taught himself English and later in Canada also taught himself French. From 1948 in Hobart he lectured in English. On 5 May 1951 he gained the degree of Doctor of Science (D.Sc.) in mathematics at the University of Tasmania, about which he wrote:

*... I applied for the degree of Doctor of Science at the same university, producing scientific work I had published after I had been granted the venia*

<sup>151</sup> All documents referred to are stored in Kateřina Löwigo<sup>vá</sup> Folder, under signature L 1482/21, Carton No. 6653, Collection PŘ 1941–1951, Police Directorate, Prague II – General Registry 1941–1950, National Archives of the Czech Republic.

<sup>152</sup> See *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, Lowig-Jackson private family archive, Sydney.

*docendi in Prague. I received this degree in May, 1951 and then I was almost immediately promoted to the rank of Senior Lecturer.*<sup>153</sup>

Henry Lowig maintained quite regular written contact with Vladimír Kořínek, sending him articles for publication in Czech journals along with relevant peer reviews and off-prints of his publications in German and English journals. He continued having a lively interest in developments in Czechoslovakia and the work of Czech mathematicians. We can cite several excerpts from his correspondence with Kořínek which deal with the publication of Lowig's article entitled *On transitive Boolean relations* [L12] in the Czechoslovak Mathematical Journal and reveal the difficulties faced by Czechoslovak intelligentsia in the 1950s.

On 6 November 1951 Vladimír Kořínek wrote to Henry Lowig:

*My dear colleague*

*Please accept my apology for the delay in sending you news relating to the publication of your work in the Journal of Mathematics and Physics. Since the beginning of 1951 there has been an extensive reorganisation of all professional journals in Czechoslovakia. That is now completed and so I am able to let you know that your article has just gone to the printer.*

*I amended your article exactly as you specified in your last letter. Because the reorganisation delayed everything in 1951, there is now great urgency. For this reason, if you have no objections, I will do the final editing of your article myself. I stress that I would do this with utmost care. After that your article would appear in early 1952 and off-prints would be sent to you immediately in Hobart. So, if I receive no communication from you to the contrary, I shall carry things out as suggested in this letter.*

*Heartfelt greetings*

*Prof. Dr. Vladimír Kořínek,  
13 Slovenská, Prague XII.*<sup>154</sup>

On 21 November 1951 Lowig wrote this response to Vladimír Kořínek:

*Revered Professor,*

*Today I received your letter of 6 November and I thank you for the news that my article has gone to the printer. I am greatly indebted to you for amending*

<sup>153</sup> See Lowig's letter to Joseph John Hallein of 4 October 1976, Lowig-Jackson private family archive, Sydney. We note that Lowig's degree *D. Sc. in Mathematics* was the first of this type at the University of Tasmania. To date there have only been three such degrees conferred at that university. See also *Commemoration 1951*, The University of Tasmania, Lowig-Jackson private family archive, Sydney.

<sup>154</sup> Kořínek's draft letter of 6 November 1951 addressed to Löwig, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic. We note that Lowig already sent his handwritten work to Kořínek on 23 August 1950. On 11 November 1950 Kořínek sent his draft corrections, to which Lowig responded in his letters of 28 November and 18 December 1950. The respective draft letters are stored in the above mentioned Collection.

*my work according to the instructions in my letter of 28 November 1950. From your letter, however, it is not completely clear whether you received my letter of 18 December 1950. For this reason I allow myself to repeat a sentence from that letter: “I would appreciate if on page 2 in my “Index of amendments” between “Clause (III)” and “Sentence 17” you could please insert “p. 182”. I would be most appreciative if you could please do this”.*

*Finally, thank you for your willingness to do the editing yourself. Of course I have no objection to you doing this.*

*Wishing you a merry Christmas and happy New Year.*

*Yours  
Jindřich Löwig.<sup>155</sup>*

However, things did not turn out as Lowig and Kořínek expected. A year later on 26 November 1952 Lowig wrote from Australia:

*Honoured Professor,*

*I refer again to your letter of 6 November 1951 in which you informed me that my article “On transitive Boolean relations – O transitivních Booleových relacích” was just sent to the printer. You went on to say that you would edit my work yourself, that the article would be published in 1952 and that off-prints would be sent to me in Hobart as soon as it came out. I answered with a letter on 21 November 1951, a copy of which I attach. To date I have not received any off-prints or any news of its publication. If it has been published, I’d appreciate being informed in which journal, in which edition and on what pages. I would also much appreciate your sending me news to the negative, if relevant, that is, that my article cannot be published in a Czech mathematical journal.*

*My heartfelt greetings.*

*Yours  
Jindřich Lowig [sic]<sup>156</sup>*

Kořínek answered that letter on 16 December 1952 in a long registered letter, in which he described the problems encountered with printing, changes to professional journals, and difficulties with ordinary interpersonal communication.

*Dear Colleague*

*I respond to your letter of 26 November 1952 as quickly as possible, having first found out the necessary information. Things stand as follows: I amended your work exactly as you wished and gave it to the journal’s editor. The journal was however reorganised at the beginning of 1951 and since 1951 has a new name: Czechoslovak Mathematical Journal, subtitled Journal for the Cultivation of Mathematics, resulting in dual numbering of editions: new with*

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<sup>155</sup> Lowig’s letter of 21 November 1951 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>156</sup> Lowig’s letter of 26 November 1952 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

old in brackets. Your article came out in volume 1 (76), 1951, pp. 199–202. The edition with your article finally came out sometime in March 1952, as the publication of the journal was delayed by the reorganisation. The off-prints were sent to you in April 1952 through the International Exchange Service at the National and University Library in Prague. I am very surprised, that you have not received them. It has been suggested that you refer to the Public Library of Victoria, Melbourne, Australia where the Exchange Service sends its items.

The Exchange Service of course also sends its items to the Public Library, Museum and Art Gallery of South Australia in Adelaide, South Australia, and to the Public Library of New South Wales in Sydney, New South Wales.

I am sorry that this will cause you extra effort and I hope that, after this great delay, you will finally get hold of the off-prints. I would be very pleased if you could let me know.

Heartfelt congratulations to you and your wife on the birth of your little daughter. Please excuse me for communicating this so late. We have been very busy here with the reorganisation of the Academy of Sciences. At the same time I wish you a lovely Christmas season and much success in 1953, and especially I wish for peace around the world, to allow all scientists to work in peace.

With heartfelt greetings  
Prof. Dr. Vladimír Koříněk.<sup>157</sup>

Lowig wrote again to Koříněk at the end of 1952. It seems he had not yet received Koříněk's most recent letter.

Honoured Professor,

To add to my letter of 26 November, I can now let you know that I received the off-prints of my article "On transitive Boolean relations" on 24 December 1952. I had not been aware that the *Journal for the Cultivation of Mathematics* is also published in Russian. So I was very surprised to receive both a Czech and a Russian version of my work. Who does the translation into Russian – the editor or a separate specialist employee of the Mathematics Department? If you yourself translated my work into Russian, I thank you heartily.

I'm also attaching two of my recently published works:

1. *Bemerkung zu den Primquotienten eines distributiven Verbandes* [Comments on the prime quotients of distributive lattices]. *Journal für die reine und angewandte Mathematik* 190 (1952), 49–50.

2. *On the properties of freely generated algebras*. *Journal für die reine und angewandte Mathematik* 190 (1952), 65–74.

The second article is concerned with Birkhoff's universal "uniform" algebra. I'd be interested to learn of any Czech mathematicians who take an interest in this element of abstract algebra. Professor, do you by chance know of any

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<sup>157</sup> Koříněk's draft letter of 16 December 1952 addressed to Löwig, Vladimír Koříněk Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.



*advanced student with an interest in abstract mathematics who might be willing to comment on my work? Of course, if requested, I could send that person their own off-prints.*

*Wishing you a happy New Year.*

*Yours*

*Dr. Jindřich Lowig [sic]<sup>158</sup>*

### Henry Lowig's professional work

From 1951 to 1957 Henry Lowig focused on topics to do with abstract algebraic structures (algebras and lattices); he studied characteristics of operations and improved, sharpened and filled in the definitions of basic objects and proofs of known results. Aside from the already referred to articles *On transitive Boolean relations* [L12], *Bemerkung zu den Primquotienten eines distributiven Verbandes* [Notes on the prime quotients of distributive lattices] [L13] and *On the properties of freely generated algebras* [L14], he published in German *Gesetzrelationen über frei erzeugten Algebren* [Law relations and freely generated algebras] [L15] and a briefer English version *On the existence of freely generated algebras* [L16], which were reviewed in the journals *Jahrbuch über die Fortschritte der Mathematik* and *Zentralblatt für Mathematik und ihre Grenzgebiete*.

### Henry Lowig's family

On 7 September 1949 in Hobart, Henry Lowig married Libuše Barbora Ottová<sup>159</sup> (born 21 July 1925) of Smíchov, Prague, daughter of František Otta and Žofie née Myslivcová.<sup>160</sup> On 26 August 1953 he became an Australian

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<sup>158</sup> Lowig's letter of 27 December 1952 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>159</sup> Libuše's father František Otta (1896–1964), son of Antonín Otta and Barbora née Kratochvílová, was owner of three restaurants in Prague, established shortly before the Depression. Libuše's mother Žofie Myslivcová (1900–1979), daughter of Josef Myslivec, supervised in the restaurants. They had two daughters Libuše and Alena (born 1931) who became a ballerina and married Zdeněk Mlčoch (1921–1995), a famous Prague artist. See Card Otta František, new catalogue of the City of Prague, Prague City Archives. Details of the lives of the Otta family can be found in materials stored in the Lowig-Jackson private family archive, Sydney.

<sup>160</sup> See *Certificate of Marriage* No. 4585 issued by the State of Tasmania on 7 September 1949. It lists the name and occupation of the groom as Henry Francis Joseph Lowig, Lecturer at University, the names of his parents are written in English as Henry Lowig and Catherine Lowig (mother's maiden name Chwojka), the bride's name and occupation are recorded as Libuse Barbora Otta, home duties, the names of her parents are written in English as Francis Otta, Landlord, and Sophia Otta (mother's maiden name Myslivec). The *Certificate* is held in Lowig-Jackson private family archive, Sydney.

Libuše Ottová studied at Drtinovo městské dívčí reformní reálné gymnázium [Dratina Modern City Girls Grammar School in Prague], though her schooling was interrupted during WWII. After liberation, she completed a special three-month course and on 3 December 1945 wrote her matriculation examinations, the validity of which was accepted with retroactive effect

citizen without losing his Czechoslovak citizenship.<sup>161</sup> In 1954 he applied for and was granted an official name change<sup>162</sup> from Heinrich Franz Josef Löwig to Henry Francis Joseph Lowig, as he did not wish to be perceived as German. From then to the end of his life he called himself Henry Francis Joseph Lowig. The couple had two children, a daughter Ingrid Henriette<sup>163</sup> and a son Evan Henry Francis.<sup>164</sup>

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to 1 June 1944. Then for two years she studied at the Law Faculty at Charles University. For a short period she worked as a public servant at the Ministry of Interior. In 1949 she obtained permission to leave Czechoslovakia. On 28 August 1949 she arrived in Melbourne on the Italian ship *Ugolino Vivaldi*, where Lowig awaited her arrival. After three days of visiting friends and colleagues, they left for Hobart where they were married. After their marriage, Libuše Lowig worked in a department store and attended a mothercraft course. After the birth of their children, she spent many years at home, later working as a *fashion consultant* at Simpson Sears, a department store near their home in Edmonton, Alberta, Canada. Later she was a volunteer docent at the Edmonton Art Gallery. In 1954 she became an Australian citizen, in 1964 she became a Canadian citizen and in 2001 she regained Australian citizenship, at the same time keeping her Canadian citizenship. From 2002 she lives in Sydney. See documents held in Lowig-Jackson private family archive, Sydney.

<sup>161</sup> See *Certificate of Naturalization as an Australian Citizen* No. E (1) No 8692, signed by the Minister of State for Immigration. The Certificate is held in Lowig-Jackson private family archive, Sydney. On 7 June 1954 Lowig's wife Libuše became an Australian citizen. A photo of the family at that citizenship ceremony featured in the Hobart Mercury on 8 June 1954.

<sup>162</sup> The name change was recorded under No. 219 at the Supreme Court of Tasmania on 10 June 1954 and signed by H. F. J. Lowig and H. R. Dobbie (Registrar, Supreme Court, The State of Tasmania, Hobart). The document is held in the private family archive, the Lowig-Jackson family, Sydney.

<sup>163</sup> Ingrid Henriette Lowig was born on 19 June 1952 in Hobart, Australia. In Canada she studied French and psychology at the University of Alberta and was awarded a Bachelor of Arts with distinction in 1974. She began her career in the Canadian public service in Ottawa, where she worked from 1974 to 1976. Next she worked as a student career counsellor at the University of Western Ontario. In 1976 she married Joseph John Hallein (1943–2005), a librarian and university lecturer in Library and Information Studies. With him she moved back to Australia. They had a son Evan Edward (born 1977) who became a multimedia computer specialist and is now studying zoology at the University of Melbourne. In 1977 Ingrid was awarded a *Graduate Diploma in Education* and two years later a *Master of Business Administration* at the University of New South Wales, Australia. After completing her university studies, she spent five years teaching at the *International Training Institute, Department of Foreign Affairs* where her students included public and private sector managers from Africa, Asia, the Caribbean and the Pacific. In 1985 she married a second time to journalist professor Keith Jackson (born 1945), now owner and director of public relations consulting firm Jackson Wells. They had a son Benjamin Robert Francis (born 1987), who is currently studying Sports Management at the University of Technology, Sydney and working at Jackson Wells. For over 30 years Ingrid worked in the fields of human resources management, organisation development and corporate communications in various Australian government departments and financial institutions. In 1996 she established the firm Executive Management Solutions and provided consulting services to organisations in financial services, government, utilities, agribusiness and retail. She has now retired and continues to live in Australia, holding positions on body corporate committees and as director of Executive Management Solutions and Jackson Wells. More information about Ingrid Jackson can be found at <http://www.linkedin.com/in/executivemanagementsolutions> and [www.jacksonwells.com.au](http://www.jacksonwells.com.au).

<sup>164</sup> Evan Henry Francis Lowig was born on 7 October 1954 in Hobart, Australia. He

At home the family always spoke in Czech and his wife called Henry by his Czech name. We note that in Hobart the couple first lived in a rented flat. In 1950 they rented an apartment in a house near the beach at Sandy Bay, where penguins visited their garden. From 1951 to 1954 they rented another apartment near central Hobart. In 1955 they bought a newly built house in the Hobart suburb Taroona where they lived until 1957.

### Henry Lowig and the Czechoslovak Republic

On 20 September 1950 the Second Section of the District National Security Headquarters in Prague V filed a criminal complaint against Henry Lowig for living illegally outside the Czechoslovak Republic. The charge included several fictional accusations:

*... On 19 June 1950 the Investigations Section OV-NB 5 in Prague-Břevnov was informed, in an official letter from the Ministry of National Security in Prague, that Dr. Jindřich Löwig, born 29.10.1904 in Prague, ditto district, last domiciled at Pod Marjánkou, Building No. 1479, Břevnov, Prague, fled our state borders illegally.*

*On the basis of this complaint, investigations have been undertaken with the following substantive findings:*

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attended high school in Edmonton, Alberta, Canada and then went to Winnipeg, Manitoba to study at St. Andrew's College and the University of Manitoba, earning Bachelor degrees in Divinity and in Arts (1977) and then a Master in Religion degree. Two years later he completed the degree of Master in Religious Studies at St. Vladimír's Orthodox Theological Seminary at New York University. During 1980 to 1982 he was professor of Patristic and Church History and Russian at St. Herman's Seminary in Kodiak, Alaska. On 29 November 1981 he was ordained by Bishop Gregory (Alfonski) to the Holy Diaconate and on 13 March 1982 was ordained to the priesthood by Metropolitan Theodosius at the Seminary Chapel in New York. For a long time Father Evan was an Orthodox monk with the Orthodox Church in America, Archdiocese of Canada (in Winnipeg, rural Manitoba, Vancouver and rural Alberta). In 1982 Father Evan was appointed rector of St. Nicholas Church in Narol, Manitoba, where he also served rural parishes until March 1988. On 1 April 1988 he was appointed rector of Holy Resurrection Russian Orthodox Sobor in Vancouver. In August 1993 he returned to Edmonton and later was given the responsibility of Deanery Supply in Alberta and thereafter was appointed variously Priest-in-charge and Rector in depopulating country towns in the Lamont-Andrew region northeast of Edmonton: St. Michael's Church, Peno; St. Tikhon of Moscow's Family of Parishes in Alberta – Churches of Holy Transfiguration, Star; Church of Holy Trinity, Sunland; Bukowina, St. Nicholas; Desjarlais, Sts. Peter and Paul; Dickie Bush – St. Nicholas, Wostok-Bukovina; Churches of Holy Ascension, Wasel; Holy Assumption, Shandro; Holy Transfiguration, North Bank; Holy Trinity, Smoky Lake; the Nativity of the Holy Virgin, Kysylew; St. Elias, Pakan; St. Michael, Sochawa-Andrew. His final appointment was as Rector of Christ the Saviour Sobor in Toronto, Ontario where he served from 15 September 2000 to 1 June 2001. We note that from 1967 he was a member of the Russian Orthodox Church in America and in 2002 he became a member of the Greek Catholic Church. Evan Lowig now lives in Toronto, where he frequents the synagogue Holy Blossom Temple and the Anglican Church of the Redeemer. He has broad interests (the history and ethnography of central and eastern Europe, Latin American history and culture, ecumenism, social justice and world development) and is fluent in many languages including Czech, English, German, French, Spanish, Russian, Polish, Ukrainian, Ruthenian (Rusyn), Rumanian, Slavonic and Yiddish). More about his life can be found on the website [http://www.holyres.org/en/?page\\_id=68](http://www.holyres.org/en/?page_id=68).

*Dr Jindřich Löwig, who is a professor of science, left for Australia legally with a proper passport, to teach at a university there. The passport of the herein named was valid until 31.12.1949; however after this time Löwig did not return back to his homeland. It is most probable that the herein named went abroad with the intent of never returning to the Czechoslovak Republic. In files about the herein named there is no record of Löwig being issued with an emigration pass. There is only a copy of his application for a passport to go to Australia.*

*The investigation found that the herein named applied to be allowed to lecture at the German Faculty of Science during the occupation, so it is more than likely that the herein named did not have a positive relationship with our country's People's Democratic Government.*

*Description of the missing: The herein named has a longish face, light brown eyes, dark brown hair, about 175 cm tall, with a noticeably protruding nose.*

*Reputation of the missing: In his last place of residence Löwig does not have a positive reputation politically.*

*Ex.*

*State record: H-1M*

*District Commander NB 5:  
Second Lieutenant Linda Josef  
On the Order of: Horna F.<sup>165</sup>*

This criminal complaint was escalated to the District Prosecutor in Prague. Court proceedings were begun regarding Henry Lowig in absentia under number 25 837. He was accused of living illegally overseas and having a hostile attitude towards the People's Democratic Government. On 18 October 1950 the prosecution on the basis of Determination No. Pt XXVI 30/50-2 was interrupted according to paragraph 88/1/a tr. z., in order to carry out further investigations. On 7 November 1950 the financial prosecutors in Prague were asked to investigate Lowig's assets in Czechoslovakia. On 25 March 1952, on the basis of the financial report, it was documented on file that the investigated had movable assets in Czechoslovakia valued at 129,970 Crowns<sup>166</sup> and no immovable assets. The District Financial Prosecutor found no grounds for further investigation.<sup>167</sup> Further information about the proceedings has not been found. Lowig was never able to obtain access to his money.

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<sup>165</sup> See criminal information stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

<sup>166</sup> According to Libuše Lowig, née Ottová, her husband tried to arrange the transfer of his money to her father František Otta; the financial transaction did not take place; the money was seized and appropriated by the state.

<sup>167</sup> See judicial file stored in Löwig Folder, Collection T/MV, under signature T-1372 MV Ministry of Interior, Security Forces Archive, Prague.

## Henry Lowig's career in Canada 1957 to 1995

In 1956 Henry Lowig became aware of a position advertised at the Mathematics Department of the University of Alberta in Edmonton, Alberta, Canada. He later wrote the following about the opportunity:

*In 1956, I noticed that the University of Alberta, Edmonton, Alberta, Canada, had advertised a position in their mathematics department. The advertisement was published in "Nature", a well-known English scientific journal. I applied for the position. Eventually, I was appointed Associate Professor of Mathematics at the University of Alberta effective 1st September, 1957. I did take up duties there at the beginning of the academic year 1957-58.*<sup>168</sup>

On 22 May 1957 the Executive Committee of the Board of Governors of the University of Alberta approved Lowig's appointment as Associate Professor for a two year probationary period at an annual salary of \$6,500.<sup>169</sup> Lowig accepted the position to lecture in mathematics and algebra.

In September 1957 the Lowig family left Hobart and moved to Edmonton.<sup>170</sup> Lowig wrote about the move to Vladimír Kořínek on 23 May 1958:

*As you will see from the letterhead, I am no longer at the University of Tasmania. I left Tasmania in September 1957 in order to take up the position of associate professor at the University of Alberta in Edmonton, Alberta, Canada. My personal address is: 7615-70<sup>th</sup> Avenue, Edmonton, Alberta, Canada. – I perhaps have not yet let you know that in addition to a daughter we now have a 3½ year old boy called Evan. Ingrid (our daughter's name) will already be starting school after the holiday period.*<sup>171</sup>

Initially for about a year, they lived in a rented house in Edmonton. In 1958 they bought a house at the above-mentioned address in the suburb of Avonmore. In 1962 they bought a new modern house with a charming garden in Lynnwood, where Libuše Lowig remained until 2002.

In the summer of 1958 Lowig visited London with his whole family, and they stayed at his sister Anna Epstein's home. There, for the first time in 10 years, he was again reunited with his mother.<sup>172</sup> It was also to be the last time.

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<sup>168</sup> See Lowig, Henry Francis J., *Curriculum Vitae* written after 1972, Lowig-Jackson private family archive, Sydney.

<sup>169</sup> See letter of the President of the University of Alberta of 3 June 1957, Lowig-Jackson private family archive, Sydney.

<sup>170</sup> The family first landed in Vancouver on 14 September 1957. See *Canadian Immigration Identification Card*, Lowig-Jackson private family archive, Sydney.

<sup>171</sup> Lowig's letter of 23 May 1958 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>172</sup> A photograph taken during the visit to London is held in Lowig-Jackson private family archive, Sydney.

On 5 June 1959 the Board of Governors appointed Lowig as a tenured Associate Professor.<sup>173</sup> During the 1966/67 academic year Lowig took sabbatical leave from the university in Edmonton and spent a year as Visiting Research Fellow at the Department of Mathematics of the Institute of Advanced Studies at the Australian National University, Canberra, Australia. The whole family spent the year in Canberra and lived in university accommodation – a two storey townhouse in Carroll Street, Hughes. While he was in Australia he was notified of his appointment from 1 July 1967 as *Full Professor of Mathematics* at the University of Alberta.<sup>174</sup> He continued in this position through to the academic year 1969/70. On 31 August 1970 he retired and was awarded the title of *Professor Emeritus*.<sup>175</sup> During the academic year 1970/71 he worked as *Sessional Lecturer*<sup>176</sup> and in 1971/72 he lectured as *Professional Associate*. He finally fully retired on 1 October 1972.<sup>177</sup> As professor emeritus, he continued to have his own office at the Department of Mathematics which he was able to use for the rest of his life.

Henry Lowig lived happily surrounded by his family in the peaceful Canadian atmosphere, quite apart from world's political, social and economic woes. He rejoiced in the successes of his children and travelled a lot with his wife and children, but never returned to Czechoslovakia. On 16 June 1964 he became a Canadian citizen,<sup>178</sup> thereby forfeiting his Australian citizenship.<sup>179</sup>

Throughout that time Lowig kept in touch with Vladimír Kořinek through letters written in excellent Czech. He maintained an interest in Czech mathematics journals and the activities of the Union of Czechoslovak Mathematicians and Physicists, and read the works of his Czech colleagues. When he encountered Czech mathematicians who emigrated to Canada, he was interested in their welfare and tried to help them out. He did not hesitate, however, to impede any attempts to defraud Canadian universities with fake diplomas or falsified

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<sup>173</sup> See letter of the President of the University of Alberta of 11 June 1959, Lowig-Jackson private family archive, Sydney.

<sup>174</sup> See letter of the President of the University of Alberta of 7 March 1967, Lowig-Jackson private family archive, Sydney. We note that Lowig's annual salary was \$16,000.

<sup>175</sup> See letter of the President of the University of Alberta of 14 July 1970, Lowig-Jackson private family archive, Sydney.

<sup>176</sup> See letter of the Dean of the Faculty of Science, University of Alberta of 12 May 1970, Lowig-Jackson private family archive, Sydney. We note that his annual salary was \$10,000.

<sup>177</sup> See *Lowig, Henry Francis J., Curriculum Vitae* written after 1972, Lowig-Jackson private family archive, Sydney.

<sup>178</sup> On 30 December 1965 the Department of Home Affairs at 23 Třída Československé armády, Bubeneč, Prague VI, issued Discharge Certificate No. 31151/65, which released Henry Lowig, his wife Libuše, daughter Ingrid and son Evan from citizenship of the Czechoslovak Socialist Republic. The certificate is held in the Lowig-Jackson private family archive in Sydney. This action also concluded the criminal prosecution – while merely a formality, this meant the Lowig family was free to visit Czechoslovakia.

<sup>179</sup> See *Certificate of Canadian Citizenship – Certificat de Citoyenneté Canadienne* No. 774672 issued by the Department of Citizenship and Immigration – Ministère de la Citoyenneté et de l'Immigration. The Certificate is held in Lowig-Jackson private family archive, Sydney.



translations supposedly from the Charles University in Prague.<sup>180</sup> Evidence of his interest in Czechoslovak culture was his lifelong membership of the *Czechoslovak Society of Arts and Sciences* [Společnost pro vědy a umění], which was established in 1958 at the initiative of Czech and Slovak intellectuals living abroad, at a time when the communist regime in Czechoslovakia had repudiated the country's historical traditions and suppressed free expression.<sup>181</sup>

During his active work life in Alberta, Henry Lowig published four articles dedicated to the study of special properties of lattice relations and absolutely free algebras: *On some representations of lattices of law relations* [L17], *On the composition of some representations of lattices of law relations* [L18], *Note on the self-duality of the unrestricted distributive law in complete lattices* [L19] and *On the definition of an absolutely free algebra* [L20].

### Henry Lowig and Czechoslovak mathematics

Henry Lowig did not turn his back on Czechoslovakian mathematics, as can be seen from his letters of the 1970s and 1980s, which were preserved in the Vladimír Kořínek estate. From 1977 to 1985 he repeatedly, though not altogether successfully, offered his articles for publication in the *Czechoslovak Mathematical Journal*. We quote a passage from one of his letters:

*Editor, Czechoslovak Mathematical Journal*  
*Department of Mathematics, Czechoslovak Academic Scientists*  
*25 Žitná, New Town, Prague 1*  
*Czechoslovakia*

*Dear Sirs,*

*In a separate envelope I am sending you a short mathematical discussion paper called: "On some generality relations between quotient algebras of freely generated algebras by law relations." It is six pages typed including the bibliography. I allow myself to enquire whether you might be interested in publishing this paper in your journal.*

*Yours sincerely,*

*H. F. J. Lowig [signed by hand]<sup>182</sup>*

In 1983 Henry Lowig wrote to Vladimír Kořínek and asked him to follow up how his article had been dealt with, as in 1977 the editor of the journal

<sup>180</sup> See Lowig's letters of 23 May 1958 and 11 January 1959 addressed to Vladimír Kořínek, in which he asked for verification of documents presented by Emil Peuker – a teacher qualification and a doctorate from the Faculty of Science of the German University in Prague. As it turned out, a simple search in the Archives of Charles University showed the documents were forged. See letters stored in Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>181</sup> Information on the history and current activities of the *Czechoslovak Society of Arts and Sciences* can be found on the English website [www.svu2000.org](http://www.svu2000.org) or the Czech website [www.svu.vutbr.cz](http://www.svu.vutbr.cz).

<sup>182</sup> Lowig's letter of 16 November 1977, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

Vladimír Doležal had told him that the article might be published in the third edition in 1980.<sup>183</sup> He repeated his request in 1985. But unbeknownst to him, his esteemed and steadfast colleague and mentor Vladimír Kořínek had died in 1981. Lowig's contribution *On some generability relations between quotient algebras of freely generated algebras by law relations* was never published by the Czechoslovak Mathematical Journal.<sup>184</sup>

### Henry Lowig's retirement and last years

Henry Lowig finally retired from lecturing in 1972, but he continued going to the Mathematics Department at the University of Alberta. He remained interested in the results of modern algebra and he published shorter works on theoretical algebra. In the 1970's he published articles entitled *On algebras generatable by a given set of algebras* [L21], *Note on the theory of independence in continuous geometries* [L22], *Vollständige Mengen von Algebren* [Complete sets of algebras] [L23] and *On the completion of relatively complemented distributive lattices* [L24]. His results in the area of lattice theory are cited even today (see Mathematical Reviews, Zentralblatt für Mathematik und ihre Grenzgebiete). He wrote insightful reviews for the journal Mathematical Reviews until 1994.

Henry Lowig died on 1 July 1995 in Edmonton. There was only a small notice of this death, in the American Mathematical Society Notices [2]:

*Henry F. J. Lowig, of the University of Alberta, Edmonton, Alberta, Canada, died on July 1, 1995. Born on October 29, 1904, he was a member of the Society for 46 years.*

### Henry Lowig remembered

Václav Zizler, a Czech mathematics professor who lived part of his life in Edmonton, only remembers him as an elderly man:

*Actually I don't know much about Professor Henry Lowig. I remember that when in 1984 I fled to Edmonton with my family, he came to greet me at the Department of Mathematics. Others from the university came to greet me too, for example Jiří Krupička (geologist), Z. Eizenstein (technik), Pavel Jelen (agronomist), Franta Hron (physicist) and Honza Nigrin (physicist). Professor Lowig was a slight person, a true gentleman. Afterwards I saw him several times at the Faculty Club. I think, although I'm not sure, that he was always accompanied by an elegant lady. Then they told me at the Department that he is the only Canadian to be mentioned in Bourbaki's books.<sup>185</sup> He was an amazingly humble and decent person.*

<sup>183</sup> We note that Vladimír Kořínek died in 1981.

<sup>184</sup> Löwig's letters of 16 July 1983 and 18 December 1985 addressed to Vladimír Kořínek, Vladimír Kořínek Collection, Carton No. 1, Heinrich Löwig Folder, Archive of the Academy of Sciences of the Czech Republic.

<sup>185</sup> About the reference cited in 2001 Alvin Baragar wrote: ... *Lowig was cited by Bourbaki (a pseudonym for a famous consortium of French mathematicians who attempted to place all of mathematics on a rigorous, axiomatic foundation) for an important theorem on the*

A few Edmontonian academics who could still remember him, wrote about him in emails in March 2011:

*He lived not far from my home, but I had very limited contact with him. I remember that he was teaching mainly algebra, foundations on different levels. He was extremely pedantic as a teacher. He had a female grad student named Chintayama (with only one name) who wrote a thesis under his supervision. There were stories that he changed spelling of his name to Lowig (without e) and made reference to this fact in his later papers, showing his love of precision. Personally he was a rather quiet, well-meaning individual, kind of old-world, central European professor. (Professor Amram Meir, University of York, Canada)*

*I knew Lowig for a while (but never referred to him as Henry). I do not have records like list of publications or list of his courses. All I remember is many anecdotes about him. Perhaps I should mention that when Halmos<sup>186</sup> visited us (after Lowig retired) he looked for Lowig whom he considered to be one of the more significant mathematicians in Edmonton at that time. Also participating in an oral final PhD examination for a student of his I noticed his enthusiasm and knowledge of the then new field of nonstandard analysis. (When the student could not answer, which was often, Lowig seemed almost to jump with the answer.) I was young then but I hope to be as enthusiastic and ready to learn new material now as he was then. ... Most of the stories about Lowig describe how pedantic he was and how his legendary slow driving caused difficulty to his fellow motorists. (Professor Emeritus Zeev Ditzian, University of Alberta, Edmonton, Canada)<sup>187</sup>*

*Unfortunately, although I met Henry, I did not know him well and don't know anything about his work. I just know that he was a gun mathematician, and when Halmos visited the University of Alberta in 1972 or 1973 he expressed great admiration of Henry's work. (Professor Rolf Turner, Auckland, New Zealand)*

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*cardinality of the vector basis of a separable, infinite-dimensional Banach space. (Alvin Baragar: An Early History of the Department, University of Alberta Mathematics Newsletter of April 2001.) In the chapter Topological Vector Spaces in Bourbaki's book *Elements of the History of Mathematics* there is mention of Löwig's result published in *Komplexe euklidische Räume von beliebiger endlicher oder transfiniten Dimensionszahl* [L6]. See N. Bourbaki: *Elements of the History of Mathematics*, translated from French by John Meldrum, Springer-Verlag, 1994, pp. 212–213 (also the German version of 1971, p. 248, Russian version of 1963, p. 224). See the original N. Bourbaki: *Elements de mathématiques, XVII, première partie, Les structures fondamentales de l'analyse, Livre V, Espaces vectoriels topologiques*, Hermann & Cie, Paris, 1955, p. 168. Also the Russian version of the book, entitled *Elementy matematiki, Topologičeskie vektornye prostranstva* (perevod s francuzskogo D. A. Rajjkov), Izdatel'stvo innostranoj litěratyry, Moskva, 1959, p. 324.*

<sup>186</sup> Paul Richard Halmos (1916–2006), American mathematician of Hungarian origin, focused on probability, statistics, functional analysis, operations theory and mathematical logic.

<sup>187</sup> We note that a factor which influenced his driving skills was the fact that Lowig only obtained his driver's licence and bought his first car in 1958, when he was 54. Unlike his younger colleagues, he was not a driver from an early age.

Henry Lowig's daughter Ingrid wrote about her memories of him in March 2011:

*My Dad spent his whole life working, reading, studying, teaching, writing and publishing. He had a little study at home, where he spent most days and evenings. He was very wise and intelligent, careful, thorough and accurate. He had no interest in pointless or empty conversation and he did not find it easy to talk about ordinary things. Small talk required a lot of effort on his part so he mostly avoided it. Maybe for that reason he didn't have a lot of 'mates', not even at the university, but only a handful real friends.*

*He was very responsible and reliable, and always modest. He did not play petty politics at the Mathematics department. I think he would see and understand what was going on, but didn't know what to do about it. So he preferred returning to his beloved mathematics work. His life consisted of mathematics, writing, teaching and his family. Other things just went on around him, and he didn't necessarily take them in.*

*Maybe that's why he survived those dreadful times and wartime experiences, though he never spoke to us about them when we were children. I recall that some time in the 1970s the family was holidaying in Europe and we visited Salzburg, Austria. Walking along a main street, we suddenly heard a loud German voice on a loudspeaker. I think it was something like the local fire station holding a public open day. The German voice really disturbed by father and we quickly had to walk away from that spot. I was surprised at the time by his reaction. Now, of course, I understand why ...*

*My father got joy from ordinary things, probably because, after all those early difficulties, he at last found good university jobs in Australia and later in Canada, had a kind, loving, optimistic wife, healthy and successful children, and a nice suburban home. He loved Canada and it become his homeland, where he could live with his family in peace and freedom, far from the political, economic and social unrest in the world.*

*He was a true scientist, so all his life he sought the truth and did not believe anything which could not be proven. As such, he was an 'agnostic'. Each Sunday evening he would read the Bible in his study, keeping a record of what he read, and sometimes discussing religious questions with the ministry. He never went to church, but insisted that we children went to church and Sunday school, so that we would grow up broadly educated and cultured.*

*My dad of course also had some perfectly normal interests. As a boy he apparently went for long walks with his father around Liberec, and he liked to ski. But by the time I was born, he was no longer skiing. He always kept active though. Each morning he did floor exercises prescribed for his back problems. In the summer he mowed the lawn in our garden and in the winter he shovelled snow, initially with a snow shovel and in later years with a machine. In the summer he swam. Each summer he and my mother drove the family all around America by car. In the winter we would often go to Hawaii, where it was nice and warm. After we grew up, our parents enjoyed world travel and ocean cruises around Europe, South America and the Pacific.*

*My father liked reading the newspaper and, because he was so meticulous and precise, he carefully folded and kept any newspapers he hadn't read for later reading; then he would read them maybe even two years later. I gather that during the war he taught himself English using Linguaphone records. Later in Canada in his old age he learned French with Linguaphone tapes.*

*He liked evening meals and Sunday midday dinners with the family. He insisted on soup as a first course, enjoyed his food and loved sweets and Czech cooking. Because he was exact and self disciplined, he categorised his meals into 'large meals', 'full meals', 'small meals', and 'small small meals'. On normal days he would eat 'full meals'. At Christmas, birthdays and celebrations he allowed himself 'large meals'. If he put on a bit of weight, he'd eat 'small meals' or if necessary 'small small meals'. He never drank alcohol and did not smoke, but loved hot chocolate or coffee with lots of milk and sugar.*

*He was never strict with my brother and me, never got angry at us, never raised his voice and it would not have ever occurred to him to slap us. He was a reserved person, but was a very sweet man. Whenever I had difficulties with mathematics homework, he would help me understand concepts, proving to be much better teacher than my high school teachers. (Ingrid Henriette Jackson (née Lowig), Sydney, Australia)*

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