Estonian Technology Education in Exile after the Second World War

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Abstract: *This paper surveys the educational pursuit of Estonian refugees during the years following the Second World War. Among the preferred countries of destination for Estonian refugees were the U.S.A., Canada, Australia, New-Zealand, where they continued to pursue their studies. The adaptation of refugees to local life in Sweden proceeded rather smoothly; the process was facilitated by the eager attitude of the refugees themselves as well as the situation in the labour market and likewise the friendliness and compassionate disposition of the Swedes. A correspondence institute was started for development of qualifications through extramural studies. The conditions in Germany were quite dissimilar, as the country was devastated and exhausted by the war. The first refugee camps were formed after capitulation. Then schools were started and various courses, including in technical training, were launched. The foremost position in vocational retraining was given to the acquisition of practical professions. In Geislingen, which was the largest centre of Estonian refugees, a technical school commenced with four departments: Building, Electrical Engineering, Mechanical Engineering and Architecture. Technology courses could also be taken at the Baltic University in Hamburg-Pinneberg, which was operating as a collective venture of Estonian–Latvian–Lithuanian refugees. With the emergence of emigration opportunities in 1949, refugee camps in Germany were gradually abandoned.*

Keywords: *professional skills, schools in refugee camps, technical courses, vocational training, vocational retraining, workshops of vocational schools*

In the autumn of 1944, about seventy-five to ninety thousand people left Estonia for western countries to flee from the new Russian occupation. They were mainly headed to Germany and Sweden. According to different authors, as many as forty to fifty thousand Estonians reached Germany and its neighbouring regions within the wave of refugees. Thirty thousand Estonian refugees arrived in Sweden either by boat straight across the Baltic Sea or through Finland (Kumer-Haukanõmm, 2006). The majority of refugees to arrive in Sweden were compelled to settle in camps. As they did not have command of the Swedish language, finding a job was difficult for them at the start. As a rule seeking a solution for their language problem remained a concern of the camp inhabitants themselves, whereas courses for learning the Swedish language were arranged only in few places (Andræ, 2005, pp. 183–184).

The study of language was supported by expeditiously issued dictionaries, among which the great Swedish–Estonian dictionary by Per Wieselgren, Paul Ariste and Gustav Suits had already been completed during the prewar period in Estonia. Sweden had succeeded in getting out of the war in a better condition than other states – the country was not destroyed, human resources were intact, a few difficulties with raw materials and energy were however encountered. The lack of workers impeded procurement of wood from forests, while quite a number of men were drawn away from work in the interest of territorial defense. Thus forestry appeared as the first field of activity to provide employment for the Estonians. Lumbermen teams were formed and training courses for timber harvesting conducted in the camps. A great number of Estonians moved to manufacturing towns. The first position in terms of refugee employment was held by the textile industry, which was followed by the metallurgical industry.

With the improvement of their linguistic and vocational skills Estonians could more frequently be encountered at construction sites as well. Large centres of Estonians sprang up in Eskilstuna, Gothenburg, Södertälje and Uddevalla. They could not depend upon the knowledge and expertise brought along from the home country. Practical skills were evidently more appreciated and hereby preparation for real work was specifically put to the foremost position in the vocational retraining of refugees. Finding some kind of a job was easy for skilled workers. Engineers, doctors, pharmacists and veterinarians were also doing well. Other educated people had to earn their daily bread with poorly paid archival work (*Rootsi…*, 1946). The first Estonian schools in refugee camps commenced their activities as early as in September of 1944. An Estonian-language newspaper *Teataja*, issued in Sweden, informed its readers that more than two thousand elementary school students, close to eight hundred high school students and approximately four hundred teachers had arrived in the country. Over fifty

schools in various camps had commenced their activities by next spring, with a thousand or so students acquiring Estonian-language education. The number of teachers working in the schools of various camps was somewhere around a hundred. Estonian-language schools were opened outside refugee camps as well.

The conditions in Germany were somewhat more complicated for refugees. They had to move around in search of a place to live and work while the war was still on. The first refugee camps were formed no earlier than after the capitulation in the spring of 1945. Even there the refugees led their lives under constant fear of being extradited to the Russians. The situation was easier for skilled laborers, among them the greatest need was for metalworkers, electricians, lumbermen, builders, textile workers, miners, shipbuilders, as well as workers at paper mills and glassworks. The gazettes of refugee camps complained that educated people did not have much chance to succeed and advised to grasp even the slightest opportunities to obtain practical skills (*Intelligents…*, 1947). Forming of the Estonian Committees was started in the spring of 1945, the earliest among them were assembled in Gotha and Detmold. The activities of the United Nations Relief and Rehabilitation Administration (UNRRA) towards organizing DP (displaced person) camps were helpful. The UNRRA plans did not include a provision on educating the children as it was assumed that the refugees would return to their home country before long. When it became evident that repatriation of the people from the Baltic States was not possible, their attitude towards schools became more understanding, even to the extent that the establishment of quite a few schools progressed smoothly namely thanks to the assistance of the UNRRA officers.

Establishment of schools was first started in the British zone. Six Estonian elementary schools were operating there as early as in June 1945, where of the earliest was opened in Schwarzenbek. As the number of Estonians in the British zone was smaller than in the American zone, it comprised multiple minor camps, on account of which schools also remained quite small. 24 Estonian schools with 620 students and seven high schools with 260 students had been registered by the following autumn and the number of students showed slight growth later on.

Schools in the American zone commenced their activities from the autumn of 1945. Earlier than elsewhere, educational activities were started in Hanau and Memmingen. One of the best-known Estonian schools in Germany – the Augsburg High School – was started in the Estonian DP camp Augsburg-Hochfeld at the beginning of August. More than anything else the schoolwork

was hampered by lack of textbooks. A proposal was made to the UNRRA for publishing mathematics textbooks. Schoolbooks, which had been published in Estonia were widely used as textbooks and reproduced according to need (Kool, 1999, p. 716). However, this could not remain the only thing to rely on. Textbooks for reproduction were lacking in a number of specialties. Teachers therefore undertook to compile required teaching materials by themselves. Thus, several mathematics textbooks were composed by Leo Ruumet, a former faculty member of the Tallinn Technical School, who was currently working in Augsburg.

Teaching at schools was based on the curricula from the period of Estonian nationhood that were reproduced from memory. On the first Teachers' Days held in Augsburg in November of 1945, it was recommended to use the curricula reproduced from memory as the basis for teaching in all Estonian schools. On account of various reasons it was not possible to follow the recommendation everywhere, due to the lack of either applicable teaching materials or teachers. The curricula implemented in the British zone differed from those in the American zone. This was due to the fact that communication between the zones remained relatively scanty as moving around was not tolerated regarding the DPs. Later the curricula became more equable. The scarcity of textbooks in the British zone was at first even more acute than on the American occupational territories. With the emergence of an opportunity to receive textbooks from Sweden the situation rapidly improved. Only few Estonians were living in the French zone, most of them had settled in the Balinge county, where men could find employment in oil shale industry. The very first Estonian school to commence its activities in the postwar Germany was an elementary school in Dormettingen on the territory of the French zone, which was opened in May 1945. Nevertheless, the school did not stay in that region for long. For fear that the French were going to extradite the Estonians to the Russians, the greatest part of the ethnic group passed over to the American zone. By the beginning of 1946 the network of Estonian schools was more or less established in the American zone, whereas Estonian schools in the French zone likewise took orders from the school superintendent of this locality.

The progress of refugees with regard to organizing the affairs of their lives in exile may be accounted for their independent initiative and generally high educational level. A questionnaire conducted in the American zone in 1946, which was addressed to fifteen thousand Estonian refugees, revealed, that every other of them had obtained secondary education. Quite many had graduated from universities. In Germany, Geislingen became the place where the greatest number of Estonians had settled. Close to five thousand Estonians have been

living there at one time or another. Various courses, folk high schools as well as an Estonian theater were organized in that town, in the same way Estonian-language newspapers, journals and books were published, whereas several companies were owned by Estonians. A great number of Estonian-educated people had assembled in that place, one of the greatest and the most important educational establishments throughout the time of exile – the Geislingen Estonian High School (operated during 1945–1950) – was initiated right there (Saarlas, 2009). Among its 38 teachers as many as 25 had obtained higher education and at that, three of them were actually university professors. A duplicating bureau was started, which made reproductions of textbooks for other Estonian schools in Germany as well. Among the several dozens of textbooks published in Geislingen, the greatest part was constituted by reproductions of textbooks that had been issued during the prewar period in Estonia. The production comprised numerous textbooks for mathematics, physics and chemistry.

The Geislingen High School grew into the best known Estonian educational centre in Germany, the list of its students included 519 young people. A great number of the distinguished expatriate Estonian scholars and engineers of the future pursued their education here, among them Professor of Electrical Engineering and consultant for *Bell Telephone Laboratories* and *Boeing Aerospace Company* Endrik Nõges, astronautical engineers Jyri Kork and Maido Saarlas, an authority on biopolymers Anatole Särko (2009), an environmental chemist and researcher of alternative energy Lembit Lilleleht, a co-worker of NASA specializing in rocket construction Rein Grabbi (2011), a physicist Henn Soonpää. The Geislingen Estonian High School was prior to its closure in 1950 accepted into the network of German schools, owing to which the end-of-year school reports and school-leaving certificates of this school became valid everywhere.

Half a thousand Estonian refugees with higher education were living in Geislingen. Technical courses were initiated by the local Association of Estonian Engineers (Kool, 1999, pp. 264–265). A civil engineer Feliks Luhaväli was invited to lead the courses. Before the war he had been employed by the Land Board of the Viru County, during the period of war teaching the principles for preparing land plans and projects at the Tallinn Technical School. The courses offered training to become a high rise and underground builder, electrician and draftsman. The last-mentioned specialty was especially appreciated by the womenfolk. Actual training herein was divided into four branches – architectural, civil engineering, mechanical engineering and land plans drawing. The greatest number of graduates was provided by the branch of architectural draftsmen. Classes for photography and geodesy were commenced afterwards.

Graduates of the technical drawing, photography and geodesy courses were in a comparatively better situation than others, as additionally to necessary theoretical knowledge these courses offered a practical training. All the others had to seek a practical training opportunity by themselves, either in private or the UNRRA establishments. Although the Association of Engineers sought to assist according to their powers, it was still far from easy (*Saksamaa*…, 1947). Starting a metallurgical workshop in addition to the existing electrical engineering and precision mechanics workshops somewhat facilitated the situation. Fortunately enough, it was possible to publish parts of materials for lectures delivered in the technical courses. For instance, Adolf Edenberg's lecture notes on dwelling houses, a compendium of lectures on photography appeared as a collective work by lecturers of the photography class. The publications of Geislingen were used as textbooks in other camps as well.

The high brain potential accumulated in the Geislingen camp caused the International Refugee Organization (IRO) to take action. As the foremost position in vocational retraining was given to preparation for practical work, the IRO started in Geislingen a vocational school serving the entire region of Ulm (*Uus*…, 1947). Estonian engineers were employed as lecturers, tuition was provided free of charge and in the German language. Feliks Luhaväli, once again, was appointed as principal to that educational institution. Courses were offered in concrete work and bricklaying, paintwork and interior decoration, technical drawing and auto mechanics. The course of concrete work and bricklaying was given by Ralf Adams, a former civil engineer in Tallinn. The audience was introduced to building materials and the respective applicable quality requirements, studied the methods for bricklaying, concreting, fixture making, reinforcement tying and gained command of the construction equipment. Much attention was dedicated to the development of practical skills. The paintwork and interior decoration course was led by an applied artist Aarne Mõtus. The first grade was conceived for providing the painter's qualifications. Drawers of greater talent advanced to the second grade, where they were taken through the basics of interior decoration and familiarized with furniture design. The technical drawing course led by an architect G. Saar, was aimed at preparing engineering drafters for construction companies and the mechanical industry. Students received training in mechanical drawing, handwriting techniques and engineering measurement. Those Estonians who had difficulties with the German language or were engaged in daytime work had an opportunity to attend evening classes, similarly held at the technical school.

Various courses were arranged elsewhere in Germany, too. The UNNRA organized professional training courses in Mannheim offering an opportunity to learn the trade of metal working and carpentry, welding and a few other

things as well. The audience was in greatest majority constituted by Ukrainians, while Estonians, Latvians, Lithuanians and Poles were represented at a more or less equal level. A scale model of crankshaft executed by an Estonian Oskar Tabur was acknowledged as the best work accomplished by a student of the earliest course, which was completed in 1946. The author received eight packs of cigarettes as a prize, whereas the scale model of crankshaft was given as a gift to E. N. Pugh, head of the UNNRA Stuttgart Regional Employment Board. Later the school was transferred to Ludwigsburg, where conditions for its operation were more favourable.

In the British zone an Estonian-language agricultural school was functioning in Schleswig-Holstein, a school of navigation in Flensburg, and a school of forestry in Lübeck. The official name of the latter was Eesti Metsatehnikum and it was headed by Professor Kaarel Veerpalu, a member of Tartu research community. Afterwards he returned to Estonia and proceeded with lecturing at the University of Tartu and the Estonian Agricultural Academy. The Estonians' forestry school turned out to be the very first vocational school in the British zone to produce graduates (*Eesti*…, 1947). The first group graduating from the school in the winter of 1947 included 24 students, among them a young lady.

Approximately half a hundred junior and senior year students of Tallinn and Tartu technical schools, whose studies had been interrupted by the war, were presumed to be living within various occupational zones in Germany. In order to afford them an opportunity to proceed with their studies and similarly offer other technology-oriented fellow countrymen a possibility to develop themselves in technology, the Estonian Associations of Engineers suggested an idea to establish a technical school. The initiative was approved by both the Estonian National Association and the UNRRA. The name chosen for the school was Eesti Tehnikum and the aforementioned F. Luhaväli was invited to become the head of school. Full, all around assistance and support to the technical school was pledged by participators of the Estonian Engineers' Days held in Geislingen. The curricula that were used at the Tallinn Technical School in the prewar period were drawn on when preparing the curricula. Retrieval of them was undertaken by the wartime Head of School Leo Ruumet. Requirements set for German curricula were likewise to be reckoned with. The total duration of programmes was determined at 4,600 hours, to be further increased by the fieldwork hours. Four departments were opened: civil engineering, electrical engineering, mechanical engineering and architecture and the period of study lasted three years (*Tehnikumi*…, 1946). Those entering the school were required to have attained education at the minimal level equivalent to three grades in high school. 110 students were accepted, although the number of applicants

was much higher. The main obstacle for not a few turned out to be insufficiency of prior education. The greatest part of architecture students was constituted by the young people, who had attended the recently completed technical courses. Additional classes of one year's duration were started at the school to offer the car mechanic's and drafter's qualifications. The public opening ceremony was held at the end of summer, 1946. Most of the school's study materials have become available in Estonia by now, among them mention should be made of a timber structures textbook by Harald Sööt. The published works also comprised a survey course on zincography by Adalbert Raba.

The overwhelming attitude towards studies was resolute and earnest. The urge for higher education was similarly powerful. Over eight hundred Estonian students were studying at various German higher educational institutions in 1947, in the American, British and French zones alike. Larger communities of Estonian university students had been formed in Göttingen, Hamburg, Heidelberg, Karlsruhe and Munich.

The Baltic University in Hamburg-Pinneberg was jointly operated by Estonian–Latvian–Lithuanian refugees through 1946–1949. It had eight faculties: Philosophy and Philology, Economics and Law, Mathematics and Natural Sciences, Chemistry, Agriculture, Medicine, Architecture and Civil Engineering, Mechanical Engineering (with departments for Technology, Mechanics and Electrical Engineering). Of the two thousand plus matriculated students nearly three hundred were Estonians (Järvesoo, 1991, p. 163). The number of faculty members extended to a couple of hundred, among them 58 Estonians practically invariably former faculty members of either the University of Tartu or the Tallinn University of Technology. Professor Ernst Öpik, an Estonian regarded as one of the great astronomers to achieve the most fundamental discoveries in the 20th-century world, was Rector of the Baltic University (Einasto, 2009). Several Estonians were employed as faculty members, among them Professor of Colloidal Chemistry Nikolai King, Professor of Meteorology and Applied Mathematics Kaarel Kirde, Professor of Hydraulic Construction Vladimir Paavel (former vice rector of the Tallinn University of Technology), Professor of Road Building Alfred Toss, Professor of Electrical Engineering Sergei Uusna, Professor of Forest Science and Forest Technology Kaarel Veermets and Professor of Geology Armin Öpik. In the set of 66 issues published within the series of Contributions of the Baltic University, 22 articles were authored by Estonians. The number of reproduced lecture materials for study purposes amounted to 80 titles. An educational institution under ordinary conditions is explicitly characterized by its graduate numbers, but the Baltic University transferred its greatest talents to German universities. For technology studies they first and foremost headed for the

universities of technology in Braunschweig and Hannover. Therefore, the number of Estonians among graduates of the Baltic University stayed at a dozen or so, whereas a few of them graduated as external students. More than fifty Estonian students were transferred to German universities. The total number was slightly enlarged by those few who, on their own initiative, proceeded to complete their studies at other universities after the activities of the Baltic University had been terminated. In 1948 the Refugees Defense Committee (RDC) proposed an idea to transfer the Baltic University to North America, either the U.S.A. or Canada in order to guarantee more favourable working conditions (*Balti*…, 1948; Järvesoo, 1991, pp. 124–126). Although the thought received favorable encouragement from the local universities and the general public, the undertaking nevertheless passed off with no result. The pervading attitude of the authorities toward studying was radically divergent in different zones. The British authorities covered the tuition fees of Estonians and even managed to find resources for grants as well. The Americans, on the contrary, shortly discontinued any kind of financial support, among other things terminating food provisioning for Estonian students, which was a really hard fallback in the postwar Germany. In 1949, Leo Allas, one of the founders of modern engineering science in Brazil, continued with the British government scholarship at Hannover University of Technology his studies, which had been interrupted in Tallinn by the war (Allas, 2011). Hydroelectric power-plants designed under his direction (over 10,000 MW in total) and other constructions may be found on five continents.

The number of university faculty members and researchers who reached Sweden amounted to around fifty. Most of them found employment in their specialty. The Estonian Learned Society in Sweden (ETSR) was established in 1945 and shortly afterwards its South-Swedish division commenced its activities with central office in Lund (Anderson, 2009). At the beginning of the 1950s the educational and research institution Estonian Scientific Institute retreated from the ETSR. The Swedish government opened an Estonian high school in Sigtuna. In Stockholm Estonian educational community started evening courses, which also gradually developed into a high school. Vocational education was furthered by a correspondence institute, established by the Estonian Committee. The earliest scientific school course was afterwards gradually complemented by several special courses. Training was provided in civil engineering drawing, mechanical engineering drawing, accounting. A school of navigation was established for inshore navigators and ship engineers (Mägi, 2011). Technology at higher educational institution level could be studied at the Royal Institute of Technology in Stockholm and the Chalmers University of Technology in Gothenburg. Both of them have produced renowned engineers and architects

of Estonian nationality. Among them mention should be made of the electronic physicist, afterwards Rector of Chalmers and President of the Royal Swedish Academy of Engineering Sciences Sven Olving, leading electrician of NASA Alfred Ots, the first Professor of Building Utility Systems in Sweden Enno Abel, an architect whose work made a significant impact on the 20th-century medical building construction throughout the world, Doctor of Technology Ervin Pütsep, and others. Quite a few of them – Sven Kinnunen, Hans Kivisild, Ivar Paljak and Enno Penno – entered themselves in research activities related to civil engineering. The first civil engineer to defend a licentiate's degree in technology (1950) was Uko Müllersdorf, afterwards assistant of bridge engineering at the Royal Institute of Technology in Stockholm.

Following the opening of emigration gates in 1949, the population of the DP camps in Germany started to wane swiftly, the number of refugees to depart from Sweden was also growing. Estonians moved to the U.S.A., Canada, Australia, New-Zealand, but also to more exotic counties such as Bolivia, the Philippines, Paraguay, Tanganyika, Tunisia and Venezuela. A great number of leavers had obtained Estonian education and Estonian professional certificates they could take with them. Those, who had not managed to finish their studies, continued to pursue their education in the new countries of residence. According to the Estonian Student Body Abroad as many as 600 Estonian young people living in the free world had succeeded in obtaining a higher education diploma by the end of 1955. Whereas engineering disciplines were in the lead in Sweden, the U.S.A., Canada and Australia, the topmost position in Germany and Switzerland was held by medicine. A few university graduates could also be encountered in England and the Republic of South Africa. The majority of young Estonian scientists with a doctorate degree were employed as faculty members at colleges and universities, especially in the U.S.A.

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