

Prof. Dr. Sándor Molnár and Györgyné Erdei:

Study trip to Lahti, Finland

Participants: Ádám Bakos

Gábor Berkes

János Dancsó

Györgyné Erdei

Éva Gubis

Sándor Molnár



Objective of the trip: to study woodworking training and the school system in Finland; to get acquainted with Finnish woodworking and wood architecture.

Visited institutions, businesses:

Salpaus, secondary vocational and trade school

Tuoterengas adult “work training” plant

Möysä primary school

Pro Puu (“For Wood”) Wood Culture Centre, Wood Museum (exposition halls and carpenter workshop)

Lahti Town Hall

Sibellius Halle Concert and Conference Centre and related world-famous wooden constructions

Tapio Anttila, famous wood designer

ISKU furniture company

It is well-known that Finland is the most forested land in Europe and its timber and paper industries are accordingly among the most advanced. The town of Lahti has played a lead role in woodworking from the mid-19th century.

The Salpaus institution for vocational training, ISKU, Finland’s biggest furniture manufacturer and the Pro Puu Wood Centre are internationally recognised. These are the reasons why the town of Lahti was selected as the destination of the study trip.

Here are some comparative data on the silviculture and wood and timber industry of the two countries:

Category	Hungary	Finland
territory (land) ('000 ha)	9303	30459
population count (million)	10	5.4
forests (%)	21	73.9
forest area/ thousand people (ha)	182	4315
net timber (thousand m3)	6949	50811
of which: industrial timber	3017	45521
fuel wood	3932	5290
lumber (thousand m3)	700	12277
plywood (thousand m3)	660	2074
paper (thousand tons)	696	14140
GPD % (forest-based industry)	0.7	5.7

Even without detailed analysis, the comparative data clearly show that, its well-known ecological advantages notwithstanding, wood is of outstanding significance for the national economy in Finland.

1. The Finnish primary school system

Based on information received from the principal and pupils of the primary school in Möysä and our visit to the school, we can say the following about the Finnish primary school system: Compulsory primary education starts at the age of 7 and lasts until the of 16, but Finnish children actually start school at kindergarten. The so-called “pre-school” is not compulsory, but most prefer to use this option. At pre-school, children learn things they will need at school. It has the advantage that children are not afraid of school, since they get to know it.

Nine-year primary school is divided into two parts:

Forms 1-6: lower primary school

Forms 7-9: upper primary school (lower secondary school)

Form 10 is optional. This is the so-called recapturing year where students can reconsider their plans for the future, acquire in-depth knowledge of certain chosen subjects or develop new competencies and skills.

All Finnish children have to finish 9th form. Compulsory schooling lasts until the age of 16.

There are two options after 9th form:

- grammar school studies (3 years)
- participation in vocational education and training (3 years – with skilled worker exam, vocational training following secondary school leaving exam: 2 years; secondary vocational education: 4 years, maturity (school-leaving) exam + vocational qualification).

As in Hungary, the best students continue their studies at grammar school, but quite a high proportion of good students takes part in VET.

Depending on the popularity of the institution, there are admission exams at some schools, and the previous certificate is sufficient at others. Secondary education and the textbooks are provided for free.

In 9th form, career orientation is organised in the form of visits to plants/business sites

Those who finished grammar school / secondary vocational school may apply for admission to university/college. Here again it depends on the institution whether an admission exam is to be passed or admission is based on the points/results brought from secondary school. There is no tuition fee, and students receive scholarships covering on average either their accommodation or their meals. They also work while studying. University education in Lahti is not of a standalone type, it is related to Aalto University in Helsinki, and its strength is designer training.

2. Finnish primary school educates for life

At Möysä school we had the opportunity to take a good look around and our experience was the following:

Pupils wore no shoes at school, they were in socks. Coats and clothes were stored in a so-called small changing room.



The school providing training in Forms 1-6 in 15 classes has 350 pupils and 18 teachers and 2 assistant teachers. In the lower forms, each class is managed by a responsible class teacher. The skills subjects (sports, music) and the technical subjects are taught by special teachers. Besides the teachers, assistant teachers ensure catching up, if necessary.

The children and the teachers are in a friendly, informal relationship. There is no ranking, no mandatory standardised tests, no comparison of the pupils' achievements. The teachers choose the methods and means of teaching themselves.

Teachers have high qualifications; they think that teaching is a mission. Teacher training at university lasts for 4-5 years. Teachers learn every subject, to be able to replace each other (except for the skills subjects, e.g. drawing, music etc.). Replacement is sometimes solved by using retired teachers or a registered teacher selected from a relevant databank.

Primary and secondary school teachers have 3 days of further training a year, the date of which is planned at the beginning of the school-year. Teachers are encouraged to take part in further training by being provided paid leave for that purpose.

There are no state inspectors. Teachers are evaluated annually, in three ways. It is a novelty that they do self-evaluation, based on 9 criteria (e.g. their relationship with colleagues, students etc.), and discuss that with the principal. The principal and the parents also evaluate them. These evaluations are kept by the town.

The teachers' room is comfortable and cosy. They do not use much paper for teaching purposes.

The physical fitness and endurance of the teachers is ensured by a well-equipped fitness room.

Besides teaching, the school textbooks and equipment, health service, the school doctor and nurse, the social welfare nurse, psychological counsel and personalised counsel and, if necessary, tutoring are provided free of charge.

Teaching starts at 8, with lessons of 45 minutes and breaks of 10 minutes. In Forms 1-2 there are 4 lessons a day, and from 3rd form on, 5-6 lessons. There are 190 days of teaching annually. The summer holidays start in the 2nd week of June and last for 10 weeks (the school-year starts in the middle of August). There is a one-week autumn holiday in October, a 10-day one at Christmas and a ski holiday of one week at the end of February.

Besides the core subjects (mathematics, mother tongue, natural sciences, environmental studies, physical education in 2-3 lessons a week and religion), pupils (boys as well as girls)

learn basic vocational skills (drilling and carving, wood- and metal-working, stitching, household skills) and the use of the related tools. They are also taught music (in 1-2 lessons a week) and fine arts. For the arts and the skills subjects, the school defines what is to be taught.

Foreign language teaching (English in 90% of the cases) starts in 3rd form, and Swedish is taught from 7th form, but those who want it can start it in 4th form. From 5th form on, biology, history, physics and chemistry are added to the curriculum. Religion is not compulsory, it is possible to choose worldview instead, but ethics has also been taken into consideration as a subject to be taught.

The classes are equipped with all the technical devices, with a shelf behind the drawboard to store demonstration tools. The teacher has a computer with overhead projector to show/demonstrate things. Each student has a small bank, with an adjustable table top (horizontal/tilted) under which they can store their textbooks.



What we found especially interesting was the technical training part. There are a weekly two hours of technical training in every form. In first and second form they do fine work, in third and fourth form half a year of textile and half a year of other techniques (wood, metal). There is manual work also in fifth and six form. In the

upper forms (7-9), children may choose technical studies, but if they do not, they will have cooking.

The school has a woodworking workshop (this is the biggest of all shops and it has all the basic machinery – in Hungary, most VET sites haven't got a workshop like that), a metal-working and a textile workshop. During our visit the pupils were just making a periscope in the woodworking workshop with the contribution of two inspectors. They were most enthusiastic about their work which they did quite autonomously. If a pupil had no success or worked at a slower pace, classmates helped, because the main thing was that everyone should solve the task.



During textile practice, they learn to sew. At the year-end ceremony, they wear clothes sewn by themselves. They also do cooking.

They have home-work, but doing it takes no more than half an hour, and its purpose is to make children work a bit. If they finish their tasks at the lesson quickly, they may do the home-work there.

Of course, the school has a big gym hall, for physical movement also plays a major part in education.

In the gym, there is also a stage. Chairs stored under the stage can be taken out with an automatic control mechanism, that's how school ceremonies are organised. If that area is not sufficient, the wall between the gym and the canteen can be opened and the auditorium is expanded.

The school has a music hall as well, with guitar, drums, cymbals, piano etc.



Lunch is free to all pupils (and the helpings are ample and rich in vitamins). There is lots of vegetables, fruit, milk, fish and various kinds of cheese. At the end of the meal, the pupils bring back the dishes themselves, placing them on trays put there for this purpose, separating glasses, plates etc., to teach them order.

Afternoon care lasts from 12 to 17. This has to be paid for, and children are also given afternoon snacks (this option is used mainly by those in Forms 1-2).

Discipline problems and absences are very rare. On average, 2-3 children need to be talked to a month.

Career orientation starts in ninth form. In February, the students draw up a list, indicating four schools where they would like to continue their studies. One or two weeks a year are provided for visiting factories, where the students can familiarise with workplaces. Admission exams take place in May. Usually, the primary school certificate is sufficient for going to secondary school, but those choosing electrical/electricity studies must take an exam.

The training of the children of immigrants is also provided for: if there are more than 3 pupils coming from abroad in a town, the state must provide for their education.

In summary, our impression was that the school educates children in a good spirit, teaching them to love physical work and educating them for life. Education is not of the Prussian, discipline-oriented type, but focuses on the emotions of the children and it is implemented in a friendly atmosphere. Students are equal, and the teachers take care to prevent any backlogs.

3. Finnish vocational education and training

Our delegation was received by Hannu Honkanen, Principal of Salpaus vocational school. He provided us detailed information on the Finnish system of education and also presented the school and the training shops.



Secondary-level education has two branches:

- general education provided by gymnasiums
- secondary vocational schools (vocational upper-secondary school).

The students of institutions providing a secondary school leaving certificate may choose from 75 vocations. 45% of students choose this school type.

The other option is primary vocational education, where 119 vocational training programmes are offered.

There is no compulsory schooling after the age of 16. Basic training (skilled worker training) lasts for three years, and it is 2 years for students with secondary school leaving certificate. If a vocational trainee wants to pass the secondary school leaving exam, that takes 4 years in case of opting for secondary vocational school education.

Most students continue their studies after completing primary school.

The regional vocational training centre has 5500 students at three sites. 1500 study at the place we visited. The students there take part in timber and furniture manufacturing, motorcar, logistics, food (catering), health and construction related training.

350 students take part in woodworking basic training. They get a quota of EUR9-10 thousand/capita/year from the state budget.

Currently, each student must spend 24 weeks at an external training site. From next year on, that will be raised to 8 months. The host company does not receive public support, and does not give the student payment during the mid-year practice. The time of the summer practice is not regulated, but the student receives cash benefit for that period.

A curriculum of each trade has been drawn up centrally (for the wood-working programmes, the curriculum was prepared in 2010 with the participation of the Salpaus school we visited). In addition, the detailed training strategy and the training materials have been worked out by the institutions. The curriculum prepared by the state defines 5-8 subjects, and specifies the requirements, i.e. what the student has to know to be admitted. The subjects taught beyond that are defined by the school itself. This extra is the subject matter of the competition of the schools. There are no textbooks; each teacher must upload his/her materials, drawings on the internet, and that is being updated on a continuous basis.

School-based training is structured for the wood industrial basic programmes according to the following: 90 weeks of vocational subjects, 20 weeks of general knowledge and 10 weeks of optional subjects (e.g. special fields, sports, etc.), i.e. a total of 120 weeks over three years.

There are eleven vocations under the wood industrial field at Salpaus:

- 5 technical ones: carpenter, painter-varnisher, paver, boat and ship builder and upholsterer; and



- 6 artistic ones: set

designer, interior designer, picture framer, gilder etc.

The carpenter, upholsterer, boat-builder etc. workshops are very well equipped, with the most up-to-date machines and devices. The students often make objects for sale. So the training shops do production activities (e.g. they make chairs, boats). In 2013, the school accepted orders for three log-houses, and 15 students do internal restoration works in Lahti Historical Museum.

The experience is that students work with a high degree of autonomy, and we hardly saw any specialist trainers in the training shops. One group contains 15-20 people. The proportion of girls is quite high also in the carpenter programme (40-50%).

Training is practice-based. After practice, the teacher holds two theoretical lessons.

The final exam is made up of two parts:

- master work (e.g. a cupboard)
- technical blog, where the student demonstrates with photographs what he did over the three years. This is highly useful, because it can be shown to the next students and the employer can also take a look at it in case of job search.

At the final exam, there are few written assignments, and these relate mainly to general knowledge subjects and labour safety. Everything else is practice, done at external workplaces. The marks are given by the teachers, but they are also discussed by the representatives of the company and by the candidate; trainees have exams in 5-8 technical subjects.

Admission exams are organised for entry to vocational school. Previously, there was an admission exam also in mathematics, but now “only” the skills are rated, e.g. candidates have to draw and bring in a piece of work they made at home. Students are informed in writing of the written assignment they have to do and show at school. The last admission assignment was to “buy a pack of matches and make a chair out of it”. Most students did not realise they could have used the matchbox itself as well. The other assignment had to be done at school, and implied a simple recurrent task, allowing to measure the aptitude to do quality work and the manual skills of the candidate. The students were given a wooden cuboid, and they had to make a cylinder out of it.

After our visit to the school and the training shops, the school principal invited us for lunch to the canteen operated by the school that also functions as a training shop. The meals, the desserts are made by the trainees, and the waiters/waitresses are also trainees. This is the

model of a real restaurant. There is also an a la carte option and a menu-of-the-day to choose from. We could also taste refreshments, i.e. non-alcoholic beer made there. Meals are provided also to secondary school students free of charge.

In summary, instead of being fragmented, vocational training takes place at very well equipped regional institutions. Training is based on giving the students a high degree of autonomy and on developing their creativity. Due to the appropriate status of people with vocational qualifications in terms of financial remuneration, vocational school trainees do not come exclusively from the ranks of students showing poorer results.

4. The Lahti wood and timber industry

The first gas-driven sawing mill was built on the shore of Lake Vesijärven located around the town, at around 1850. The railroad connecting Lahti to St Petersburg and Helsinki was finished in 1865. This was conducive to the dynamic growth of the wood and timber industry. The enormous amount of timber coming on rafts from Central Finland was processed at the sawing mills set up along the lake shore. Sawn and planed wood was then transported by rail to all over Europe. With the development of the town, however, timber processing along the lake had to be relocated. The last paper mill and sawing plant were closed down in the 1980s, and this gave way to the natural cleansing of lake water. Today, there are cultural facilities and a housing estate for 5000 at their place. The world-famous ISKU furniture factory as well as a wood industrial machinery manufacturer, Lahden Rante, are still active in the town, as well as many timber businesses. We visited ISKU and a very special business, the Tuoterengas timber plant. Apart from its core activity, the latter is famous for employing 220 slightly handicapped people who used to be unemployed or whose labour market ties had been severed. They are provided vocational training and employment in two shifts at a fair salary.

The timber industrial activity of Tuoterengas is also worthy of attention.



Their primary product is the patented M \ddot{o} lkky wooden toy series, of which they produce 150 thousand sets a year, of cylinder-shaped birch (18000 m of cylindrical rods are used for that purpose). They also make wooden dice, and 20 thousand pallets of timber of poorer quality. The latter is made at 6 minor business sites. The cylindrical wooden basic material (2500 m³ birch logs, 5000 m³ pine logs) is processed at two relatively smaller plants.

The 220 “public workers” do their job relatively well, but another 50 normal employees also contribute to the success of the business activity.

Unemployment has increased lately also in Finland (to 8.1%), and the example of Tuoterengas plant demonstrates that part of the people concerned can be brought back to work. Sylviculture and the wood industry provide good opportunities for that.

On our visit we saw that ISKU currently upholstered seats and beds make up 90% of the company’s products. The upholstered frames and structures are made of birch plywood and solid wood. Besides textiles, some leather is also used for the upholstered parts. The padding is made exclusively of foam rubber. We saw no trainees on practice; the factory employs mainly trained workers.

5. Wood culture, architecture, design

The Finns have “green gold” as they call it, i.e. forests and timber, and in enormous quantities, as shown above. The traditions of woodworking and wood architecture go back thousands of years. Pro Puu (For Wood), the centre (and the association) and the related exhibitions are dedicated to keeping this traditional culture alive. The head of the Centre, Markku Tonttila, informed us that 50 renown carpenters and designers have joined the association. The building itself, the former match factory, has an exposition hall and an independent exhibition (museum) located on a large area. The headquarters host also an art shop of wooden products and a carpenter workshop. Since all that is in the downtown area, it provides excellent publicity for wood as a material of noble beauty.

The modern Finnish artist-architects and furniture designers (e.g. Alvar Aalto, Eliel Saarinen) have had a large share in the development and aesthetical



enrichment of Lahti. Today, a successful Art Institute operates in their footsteps at Lahti University.

As part of the programme, our delegation was introduced to world-famous interior decorator and furniture designer Tapio Anttila from Lahti, who held a presentation showing his ambitious wood-related activities (we have invited the artist to Sopron University).

We visited one of masterpieces of European wood architecture, the Sibelius Conference and Concert Centre, with Professor of Architecture Unto Sukanen as our guide.



The ensemble that has a wooden structure was constructed on the site of the former glass factory, on the lake shore, and consists of 4 parts:

- reception area (changing rooms, buffet etc.),
- large hall (“forest with stars” on the ceiling)
- conference centre with 5 halls (birch, pine, spruce, aspen, basswood, homage to the works of Sibelius) – and what is the most important: the concert hall accommodating 1200 that is(acoustically one of the best in the world.



The classical form of the nearby railway station built in 1865 is a historical masterpiece of wood architecture.

6. Visit to the Town Hall



Let us mention that the delegation was received also at the Town Hall designed by Elial Saarinen in 1912. Our hosts have shown us the beautiful building. We had the opportunity to visit also the Arboretum and the big church designed by Alvar Aalto.

Summary

The group taking part on the study trip realised a successful programme in Lahti, a town looking back on a timber industrial/woodworking past of 150 years.

The school system based on 9-year primary school is well-organised and it is driven by the creative co-operation of students and teachers. The schools are very well equipped at every level.

Vocational education and training is provided primarily by large institutions boasting an up-to-date training and technical (machinery etc.) infrastructure. The institutions have no financial problems at all (the per capita quota is EUR9-10 thousand a year), and the training shops operate also on a business basis, with full responsibility, relying on the autonomous activity and creative skills of their students.

The development of the town of Lahti in the 19th and 20th century was triggered by the development of the wood and timber industry. The majority of the old mills/plants had been relocated outside the town or closed down for good. Some, however, have prevailed and are still of international relevance (e.g.: ISKU, Rante).

The efforts to make “the culture of wood”, wood itself, loved and the relevant marketing and design activities are exemplary (e.g. we have seen no plastic window). The Pro Puu association makes an excellent work of linking the love for live and “dead” wood (timber) and of popularising products made of wood.

Proposals

The activity profile of the Hungarian vocational schools has to be cleansed; training should take place at VET institutions having a good material and technical infrastructure, and an adequate number of students and experts/professionals.

After the acquisition of practical basic knowledge at training shops, students should be able to do responsible, autonomous work at external practical training sites.

Successful timber industrial activity is based on design and product development relying on the national traditions; this should be given more ground also in VET.

No VET reform is conceivable without the marked increase of the earnings of skilled workers.
(Earnings are a decisive career choice criterion).

More should be done at national and also local level to propagate reproducible, environmental-friendly wood and to develop the “culture of wood”, including the preservation of the timber industrial traditions and historical relics (Pro Puu is a good example).

Salgótarján, 15 May 2013