

110 Years of University Forestry Education in the Republic of Croatia

1. International Scientific Conference »Challenges in Forestry and Wood Technology in the 21st century«

On the occasion of the 110th anniversary of university forestry education in the Republic of Croatia, the International Scientific Conference »Challenges in Forestry and Wood Technology in the 21st Century« was held at the Faculty of Forestry, University of Zagreb, on October 17 2008. After the opening ceremony and introductory paper by the Faculty Dean, Assoc. Prof. Dr. Sc. Andrija Bogner, entitled »110 Years of University Forestry Education in the Republic of Croatia«, the activities were performed in two sections – Forestry Section and Wood Technology Section. 22 call for papers were presented by forestry and wood technology specialists, professors at the Faculties of Forestry from Croatia, several European countries and United States of America.

1.1 Forestry Section

In the Forestry Section 10 papers were presented divided into four groups. Moderators of the first group of papers were Assoc. Prof. Dr. Sc. Igor Anić, and Assist. Prof. Dr. Sc. Janez Krč, and the following papers were presented:

- ⇒ Oršanić, M., Pentek, T.: The Past, Present and Future of University Forestry Education in the Republic of Croatia
- ⇒ Matić, S.: Treatments in the Forest Environment and Climate Change as Significant Factors Contributing to Forest Dieback and Degradation
- ⇒ Stampfer, K., Kanzian, C., Poršinsky, T., Horvat, D.: Forest Biomass Utilization in Austria – State of the Art and Perspectives

The second group of papers was modeled by Assoc. Prof. Dr. Sc. Karl Stampfer and Assist. Prof. Dr. Sc. Ivica Tikvić, and the following papers were presented:

- ⇒ Diaci, J.: Close-to-Nature Silviculture as a Solution for Increased Societal Demands on Forests within a Changing Environment
- ⇒ Klimo, E.: The Effects of Norway Spruce Monocultures on Soil Properties and their Conversion to Mixed Forests
- ⇒ Krč, J., Košir, B., Potočnik, I., Pentek, T., Šušnjar, M.: Forestry Engineering in Central Europe – Present Status and Future Development

Assoc. Prof. Dr. Sc. Renata Pernar and Assoc. Prof. Dr. Sc. Davorin Kajba managed the third group of papers and namely:

- ⇒ Heinze, B.: Conservation of Genetic Resources and Breeding for an Uncertain Future: Support Offered by Molecular Biology
- ⇒ Daksobler, I.: Phytocoenological Research in Forest Ecosystems at the Beginning of the 21st Century
- ⇒ Bončina, A., Čavlović, J.: Perspectives of Forest Management Planning

Moderators of the last paper as well as of the discussion on all papers presented at the Conference were Assoc. Prof. Dr. Sc. Josip Margaletić and Assist. Prof. Dr. Sc. Tomislav Poršinsky. The last paper was:

- ⇒ Uščuplić, M., Dautbašić, M., Trešić, T., Mujezinović, O.: Current Health Status of Bosnia and Herzegovina Forests at the Beginning of the 21st Century

The discussion was held by: Academician Slavko Matić, Prof. Dr. Sc. Emil Klimo from Mendel University in Brno, Assoc. Prof. Dr. Sc. Karl Stampfer from BOKU in Vienna, Assist. Prof. Dr. Sc. Janez Krč from Biotechnical Faculty, University of Ljubljana, Prof. Dr. Sc. Faruk Mekić and Academician Midhat Uščuplić from Faculty of Forestry, University of Sarajevo.

1.2 Wood Technology Section

In Wood Technology Section twelve papers were presented:

- ⇒ Ljuljka, B., Despot, R.: Foundation and Development of Wood Science and Technology Department at the Faculty of Forestry of the University of Zagreb
- ⇒ Čunderlik, I.: Experience with the Bologna Process at the Faculty of Wood Sciences and Technology at the Technical University in Zvolen
- ⇒ Molnar, S.: Development Directions of Wood Sciences and Technology
- ⇒ Guzenda, R.: Current Problems of the Polish Woodworking Industry – Perspectives and Threats
- ⇒ Vlosky, R. P.: An Integrated Market-Based Methodology for Forest Products Sector Development
- ⇒ Petrič, M.: Implementation Process of the EU VOC Directive into the Slovenian Furniture Industry

- ⇒ Trposki, Z.: Improvement of Output Parameters through a Decrease of Costs of the Bandsaw
- ⇒ Babiak, M.: Trends in Wood Properties Research
- ⇒ Horman, I.: Numerical Analysis of a Phenomenon in Wood Caused by Heat, Moisture or External Load
- ⇒ Rapp, O. A.: Quality Control of Thermally Modified Timber – a New Method for Testing TMT
- ⇒ Smardzewski, J.: Anthropotechnical Aspects of Furniture Design
- ⇒ Welzbacher, R. C., Brischke, C., Rapp, O. A.: Performance of Thermally Modified Timber (TMT) in Outdoor Applications – Durability, Abrasion and Optical Appearance

As the Conference was held on the occasion of a very significant anniversary of the Faculty of Forestry of the University of Zagreb, the celebration of its 110th birthday, it is the right time to recall its famous past, to consider its present and to try to predict future events so as to get the Faculty ready for them.

2. Past, present and future of university forestry education in Croatia

2.1 Historical review of forestry education in Croatia

Croatia makes part of the ancient Mediterranean civilization that has been developed in these regions for more than a thousand years. This is why the effects of reduced forest cover have been first observed in the Mediterranean parts of Croatia. This encouraged the residents of coastal regions to protect forests by the first terms of their town statutes, starting with the 12th century (Nin – 1103, Korčula – 1214, Split – 1240, Dubrovnik – 1272, Trogir – 1322, Krk – 1388, etc.). At that time, knowledge was transferred verbally, and also in writing.

The beginning of forestry education in our country was first recorded with respect to forestry school of 1646 in Blato on the Island of Korčula (this is the time when the terms of the Venetian Senate applied for Istria, Kvarner and Dalmatia). The first forestry schools in Europe were established at the beginning of the 14th century and namely: 1807 in Würtenberg (Germany), 1813 in Mariabrunn (Austria), 1816 in Tharandt (Germany), 1824 in Nancy (France), 1828 in Stockholm (Sweden), 1846 in Bánska Štiavnica (Check), 1872 in Florence (Italy) and in Vienna (Austria), 1885 in Zurich (Switzerland), etc.

The first forestry experts from Croatia were educated in Marianbrunn, Tharandt and Bánska Štiavnica. There were few of them in these schools, and yet they had a considerable intellectual, professional and patriotic role in the life of Croatia of that time. They greatly affected many events related to forestry profession and public life in Croatia, e.g. foundation of the Croatian-Slavonian Economy Society 1841 and within it the Forestry Depart-

ment, which gained independence in 1846 under the name Croatian-Slavonian Forestry Society. It has been active ever since and today it is known as the Croatian Forestry Society.

2.1.1 Forestry education at the School of Agriculture and Forestry in Križevci (1860 – 1898)

As a result of comprehensive activities of the members of the Croatian-Slavonian Forestry Society, and especially of Franjo Šporer, Dragutin Kos and Ante Tomić, the School of Agriculture and Forestry was established in Križevci in 1860.

Three development phases can be observed in the school activities:

- ⇒ Phase 1 of Križevci School (1860–1877) – the aim was to provide scientific education and practical training for young people who were to work as foresters with land owners or municipals or to get a state job.
- ⇒ Phase 2 of Križevci School (1877–1894) – in 1877 the School of Agriculture and Forestry in Križevci was restructured for the first time, and in accordance with the new law it was named Royal School of Agriculture and Forestry in Križevci.
- ⇒ Phase 3 of Križevci School (1894–1898) – with the development of forestry science and the ever increasing need of forestry profession for properly qualified experts that would be acknowledged worldwide, education of forestry experts became an interesting topic of discussion. Forestry Department of School of Agriculture and Forestry was globally considered as secondary school level, and hence forestry experts decided that it was the right time to found a Academy of Forestry at the University of Zagreb.

The Forest Act of 1894 played a significant role for the termination of activities of the Forestry Department of the Royal School of Agriculture and Forestry in Križevci and for opening the Academy of Forestry at the Faculty of Philosophy of the University of Zagreb

To be specific, according to paragraph 6 of this act on organization of the forest and technical department, all jobs above the 10th class of civil servants required academic education or university degree. All further activities were, therefore, focused on the foundation of a high-level forestry school – Academy of Forestry which was established in October 1898.

2.1.2 University-level forestry education at the Academy of Forestry within the Faculty of Philosophy in Zagreb (1898 – 1919)

The Academy of Forestry was established on October 20 1898 (this date is still celebrated as the Day of the Faculty of Forestry of the University of Zagreb). With this Academy, forestry education in Croatia gained university status and it was the fourth high school of the University of Zagreb.

Several significant events for the University of Zagreb and forestry profession occurred that same day: opening ceremony of the newly built Forestry Center and Forestry Museum, regular 23rd General Meeting of the Croatian-Slavonian Forestry Society, and installation ceremony of the new rector of the University of Zagreb for the academic year 1898/99.

At the beginning of the Academy of Forestry, when it was a three-year study and when the Academy was strictly connected with its parent body, Faculty of Philosophy, the dean of the Faculty of Philosophy was at the same time the dean of the Academy of Forestry.

When the study became a four-year study and when a two-year Geodetic Course was established in 1908, the Academy became independent and started to choose its chairmen (who acted as deans) among teachers from the Academy of Forestry.

After World War I, in 1918 Croatian forestry was in a really difficult position. Political dependence on Austria and Hungary was terminated. To that time, forest administration was in the hands of foreigners, and in Croatia there was a serious lack of professional staff. There were even rumors among foresters that it was impossible to move on without foreign experts and that foreign forester who used to manage the state forests should be kept. At that time, Dr. Andrija Petračić and Dr. Đuro Nenadić, who taught at the Academy of Forestry, considered decisively that it was high time to gain independence and educate forestry experts with the highest qualification at a Croatian faculty. They immediately took measures to restructure the Academy of Forestry into an independent Department of the Faculty of Philosophy.

2.1.3 University-level forestry education at the Faculty of Agriculture and Forestry, University of Zagreb (1919 – 1960)

On August 31 1919 the Decree was issued on establishment of the Faculty of Agriculture and Forestry of the University of Zagreb, which started its activities in the academic year 1919/20. The Faculty of Agriculture and Forestry consisted of two departments: Agriculture and Forestry, and the seat of the Forestry Department was in the building of the Forestry Society. On January 27 1920 Dr. Andrija Petračić and Dr. Đuro Nenadić were the first two regular professors appointed for the Forestry Department, and on March 18 and 19 the first two full professors were appointed for the Agriculture Department. On April 10 1920 the teaching council appointed Prof. Dr. Sc. Andrija Petračić the first dean of the Faculty of Agriculture and Forestry.

The first teaching curriculum was approved on July 7 1921, and the subjects were divided as follows: mandatory subjects with obligatory graduation (state) exams, mandatory subjects with obligatory individual exams, mandatory subjects with obligatory lectures and/or practical training and optional subjects that were only recommended to students.

The first scientific basis was changed in the years to come, and however until 1947 the changes were only minor. More serious changes were introduced in the exam procedure so that all exams were taken individually.

The development of the Faculty was neither harmonic nor without problems. The Faculty of Agriculture and Forestry had modest financial resources, and as early as 1926 there were signs in daily newspapers that the authorities planned to close the Faculty of Agriculture and Forestry in Zagreb. Such misgivings were confirmed by the fact that in 1926 and 1927 the competent Ministry of Education in Belgrade provided no funds for the Faculty and hence the number of assistants was reduced as part of economy measures.

Pretty significant changes in the teaching curriculum occurred in 1947 and 1951/52. On March 11 1947 the teaching program was divided into two sections or groups at the Forestry Department (this was the beginning of the Wood-Technology Department): Forest Management (Biology Section – B) and Forest Industry (Technical Section – T).

Biology Section was aimed at educating specialists for forest silviculture and management, and Technical Section at educating specialists for different technical operations in forestry as well as wood industry experts. The said teaching curriculum was developed at the request of the operating staff who were the first to make complaints on this curriculum. Therefore numerous meetings were held within the Faculty, and then with the representatives of the operating staff.

In September 1951 an inter-faculty conference was held in Sarajevo between forestry faculties i.e. forestry departments on the territory of the former state. It was concluded that a forestry engineer had to acquire wide and comprehensive education in three groups of teaching subjects, and namely biological, technical and economic-organizational subjects, and at one or two faculties a special section was to be introduced for educating wood-industry experts. The slogan of the representatives of the forest operating staff was »up to and from the axle of public traffic«.

The Forestry Department of the Faculty of Agriculture and Forestry in Zagreb was divided into two sections: Forest Management Section and Wood Industry Section.

2.1.4 University-level forestry education at the Faculty of Forestry, University of Zagreb (1960–2006)

Due to ever increasing development of all sectors of economy since 1945, and especially agriculture and forestry, an ever increasing need arose for separating agriculture and forestry into two independent faculties. Consequently, as of January 1 1960 both Departments of the then Faculty of Agriculture and Forestry became independent faculties pursuant to the Act announced in the Official Gazette »NN« of December 8 1959.

The Faculty of Forestry of the University of Zagreb consisted of two departments: Forest Management De-

partment and Wood Industry Department. During the years, teaching curricula were changed (some subjects disappeared, some were divided into two new subjects, schedules of lectures, practical trainings and field trainings changed, etc.), as well as the way and conditions of taking exams, organizational structure within the Faculty (institutes, department chairs, seats) and names of departments, etc.

2.2 University forestry education at the Faculty of Forestry, University of Zagreb in accordance with the Bologna Declaration (from academic year 2005/2006)

In the academic year 2006/07 a new way of studying started at the Faculty of Forestry of the University of Zagreb, and the new teaching plans and programs were created in accordance with the Bologna Declaration and the then efforts to restructure the university education in Croatia within a pretty strict framework that had to be observed.

The Faculty of Forestry of the University of Zagreb consists today of the Forestry Department and Wood Technology Department.

The Forestry Department is located in the new building of the Faculty of Forestry that has been almost completely finished after twelve years (the cornerstone of the new building of the Forestry Department was laid in 1996 on the Day of the Faculty of Forestry). Thus preconditions were created for further development of the Forestry Department of the Faculty of Forestry.

With the aim of organizing and upgrading the teaching and scientific and research activities at the Forestry Department, the following institutes and pertaining laboratories have been established:

- ⇒ Institute of Ecology and Silviculture (Ecology and Pedology Laboratory and Laboratory for Forest Seeding and Nursery)
- ⇒ Institute of Forest Management and Remote Sensing (Laboratory for Measuring Forest Resources and Laboratory for Remote Sensing and GIS)
- ⇒ Institute of Forestry Genetics, Dendrology and Botanic (Laboratory for Molecular Biology and Physiology of Plants)
- ⇒ Institute of Forest Engineering (Laboratory for Technical and Technology Measurements in Forestry and Laboratory for Forest Biomass)
- ⇒ Institute of Forest Protection and Wildlife Management (Laboratory for Tree Pathology and Laboratory for Forestry Zoology)
- ⇒ Institute of Training and Research Forest Centers (Research Forest Facility Lipovljani, Research Forest Facility Velika, Research Forest Facility Zalesina, Research Forest Facility Rab, Research Forest Facility Zagreb, State Hunting Ground Opeke II/39 and State Hunting Ground Kalifront VIII/6).

2.3 Future of university forestry education in Croatia

In order to provide in future the place that the university forestry education in the Republic of Croatia obviously deserves and this has always been a leadership position in the region and one of the leading positions among the university-level institutions in Europe, the following steps should be taken:

- ⇒ make a detailed analysis – objectively, critically and promptly, of the current system of university forestry education in the Republic of Croatia and determine problems and deficiencies;
- ⇒ define different possibilities for solving the determined problems, deficiencies, omissions and imperfections taking into consideration the European and global directives for university-level education and forestry, on one hand, and on the other trying to preserve a century-long tradition, with all the features specific for the Faculty of Forestry in Zagreb and the Croatian forestry profession;
- ⇒ select the most acceptable and the best solution, from all standpoints, of individually determined problems;
- ⇒ appoint responsible persons for obligations, activities and tasks, and set deadlines for their implementation;
- ⇒ establish and provide continuous monitoring of implementation of individual activities and define models and criteria for assessing their success.

4. Instead of conclusion

110 years of organized high-level forestry education at the University of Zagreb is a very significant accomplishment of which only few forestry faculties in Europe can boast of. University education and forestry profession in Croatia have been multiply, powerfully and permanently interconnected for more than a century. This is one of the key reasons of the actual beauty, naturalness and quality of our Croatian low-lying, hilly, mountainous, Mediterranean and sub-Mediterranean forests.

We must, we want and we wish to leave immeasurable natural resources that we inherited from our grand-grand-fathers, grand fathers and fathers to our children, grand children and grand-grand-children in a better state than they were when we took them over, because this is our moral and professional obligation. In doing so, we shall rely on the help of awe-inspiring forestry tradition, forestry tradition enriched with modern knowledge of forestry science and applied in forestry operations by forestry engineers and highly qualified forestry specialists and experts, who graduated and acquired their post-graduate diplomas from our Faculty of Forestry in Zagreb.

Tibor Pentek and Tomislav Poršinsky

110. obljetnica visokoškolske šumarske nastave u Republici Hrvatskoj

1. Međunarodno znanstveno savjetovanje »Izazovi u šumarstvu i drvnjoj tehnologiji u 21. stoljeću«

Na Šumarskom je fakultetu Sveučilišta u Zagrebu 17. listopada 2008. godine, povodom proslave 110. obljetnice visokoškolske šumarske nastave u Republici Hrvatskoj, održano međunarodno znanstveno savjetovanje »Izazovi u šumarstvu i drvnjoj tehnologiji u 21. stoljeću«. Nakon otvaranja savjetovanja i uvodnoga referata dekana Fakulteta izv. prof. dr. sc. Andrije Bognera pod naslovom »110 godina visokoškolske šumarske i 60 godina visokoškolske drvarske nastave u Republici Hrvatskoj« rad se odvijao u dvije sekcije, u Šumarskoj sekciji i u Drvnotehnološkoj sekciji. Podnesena su 22 pozivna referata šumarskih i drvnotehnoloških stručnjaka, profesora šumarskih fakulteta iz Hrvatske, nekoliko europskih zemalja i Sjedinjenih Američkih Država.

1.1 Šumarska sekcija

U Šumarskoj je sekciji izloženo deset referata podijeljenih u četiri skupine. Moderatori su prve skupine referata bili izv. prof. dr. sc. Igor Anić, doc. dr. sc. Janez Krč, a izloženi su ovi referati:

- ⇒ Oršanić, M., Pentek, T.: Prošlost, sadašnjost i budućnost sveučilišne šumarske nastave u Republici Hrvatskoj
- ⇒ Matić, S.: Zahvati u okolišu šuma i klimatske promjene kao važni čimbenici njihova sušenja i propadanja
- ⇒ Stampfer, K., Kanzian, C., Poršinsky, T., Horvat, D.: Uporaba šumske biomase u Austriji – pregled sadašnjega stanja i moguća očekivanja.

Drugu su skupinu referata modelirali izv. prof. dr. sc. Karl Stampfer i izv. prof. dr. sc. Ivica Tikvić, a izneseni su ovi referati:

- ⇒ Diaci, J.: Prirodno uzgajanje šuma kao odgovor na povećane potrebe za općekorisnim funkcijama šuma u promjenjivom okolišu
- ⇒ Klimo, E.: Utjecaj smrekovih monokultura na značajke tla i njihova konverzija u mješovite šume
- ⇒ Krč, J., Košir, B., Potočnik, I., Pentek, T., Šušnjar, M.: Šumarsko inženjerstvo srednje Europe – stanje i budući razvoj.

Izv. prof. dr. sc. Renata Pernar i izv. prof. dr. sc. Davorin Kajba vodili su treću skupinu referata u kojoj smo čuli ova izlaganja:

- ⇒ Heinze, B.: Zaštita genofonda i oplemenjivanje u budućnosti: mogućnosti molekularne biologije
- ⇒ Dakskobler, I.: Fitocenološka istraživanja šumskih ekosustava na početku 21. stoljeća
- ⇒ Bončina, A., Čavlović, J.: Perspektive uređivanja šuma.

Moderatori posljednjega referata i rasprave o svim izlaganjima na savjetovanju bili su izv. prof. dr. sc. Josip Margaletić i doc. dr. sc. Tomislav Poršinsky. Zadnji je referat bio:

- ⇒ Uščuplić, M., Dautbašić, M., Treštić, T., Mujezinović, O.: Aktualna slika zdravstvenoga stanja šuma Bosne i Hercegovine na početku 21. stoljeća.

U raspravi su sudjelovali: akademik Slavko Matić, prof. dr. sc. Emil Klimo s Mendelova Sveučilišta u Brnu, izv. prof. dr. sc. Karl Stampfer s BOKU-a iz Beča, doc. dr. sc. Janez Krč s Biotehničkoga fakulteta Sveučilišta u Ljubljani, prof. dr. sc. Faruk Mekić i akademik Midhat Uščuplić sa Šumarskoga fakulteta Sveučilišta u Sarajevu.

1.2 Drvnotehnološka sekcija

U Drvnotehnološkoj sekciji izloženo je dvanaest referata:

- ⇒ Ljuljka, B., Despot, R.: Osnivanje i razvoj drvnotehnološkoga odsjeka na Šumarskom fakultetu Sveučilišta u Zagrebu
- ⇒ Čunderlik, I.: Iskustva »bolonjskoga« procesa na Fakultetu drvne tehnologije na Tehničkom sveučilištu u Zvolenu
- ⇒ Molnar, S.: Trendovi razvoja u drvnotehnološkom obrazovanju u Mađarskoj
- ⇒ Guzenda, R.: Trenutačni problemi u poljskoj industrijskoj preradi drva – perspektive i opasnosti
- ⇒ Vlosky, R. P.: Integrirana, tržišno zasnovana metodologija za razvoj sektora drvnih proizvoda
- ⇒ Petrič, M.: Uvođenje procesa EU VOC u proizvodnju namještaja u Sloveniji
- ⇒ Trposki, Z.: Poboljšanja izlaznih parametara smanjenjem troškova na tračnoj pili
- ⇒ Babiak, M.: Trendovi u istraživanju drvnih svojstava

- ⇒ Horman, I.: Numerička analiza pojava u drvu prouzročenih toplinom, vlagom ili ostalim vanjskim utjecajima
- ⇒ Rapp, O. A.: Kontrola kvalitete toplinski modificiranoga drva – nova metoda za testiranje TMT
- ⇒ Smardzewski, J.: Antropometrijski aspekti u dizajniranju namještaja
- ⇒ Welzbacher, R. C., Brischke, C., Rapp, O. A.: Ponašanje toplinski modificiranoga drva (TMT) u vanjskoj primjeni – trajnost, trošenje i izgled.

Budući da je, kao što je već istaknuto, savjetovanje upriličeno u povodu vrlo vrijedne obljetnice Šumarskoga fakulteta Sveučilišta u Zagrebu, proslave njegova 110. rođendana, treba se podsjetiti slavne prošlosti, razmotriti sadašnjost te pokušati predvidjeti događanja u budućnosti ne bi li ju Fakultet dočekao što spremniji.

2. Prošlost, sadašnjost i budućnost sveučilišne šumarske nastave u Hrvatskoj

2.1 Povijesni pregled sveučilišne šumarske nastave u Hrvatskoj

Hrvatska je dio stare sredozemne civilizacije koja se na ovim prostorima razvija više od tisuću godina. Upravo su zato u sredozemnim dijelovima Hrvatske ponajprije uočene posljedice smanjenja šumskoga pokrova. To je potaklo žitelje primorskih krajeva da u svojim prvim zakonskim odrednicama statuta gradova, počevši od XII. stoljeća (Nin – 1103, Korčula – 1214, Split – 1240, Dubrovnik – 1272, Trogir – 1322, Krk – 1388 i dr.), štite šume. U tom su se vremenu znanja prenosila usmenom predajom, ali i pisanom riječju.

Začetak se naukovanja o šumarstvu u našoj zemlji spominje u svezi sa šumarskom školom iz 1646. godine u Blatu na otoku Korčuli (to je vrijeme kada su za Istru, Kvarner i Dalmaciju vrijedile zakonske odredbe Senata Venecije). Prve su šumarske škole u Europi osnivanе početkom XIX. st., i to: 1807. u Würtembergu (Njemačka), 1813. u Mariabrunnu (Austrija), 1816. u Tharandtu (Njemačka), 1824. u Nancyju (Francuska) 1828. u Stockholmu (Švedska), 1846. u Bánskoj Štiavnici (Češka), 1872. u Firenzi (Italija) i u Beču (Austrija), 1885. u Zürichu (Švicarska) itd.

Prvi su se šumarski stručnjaci iz Hrvatske školovali u Marianbrunnu, Tharandtu i u Bánskoj Štiavnici. Njih je u tim školama bilo malo, ali su imali značajnu intelektualnu, stručnu i domoljubnu ulogu u životu tadašnje Hrvatske. Imali su velik utjecaj na mnoga događanja vezana uz šumarsku struku i javni život u Hrvatskoj, npr. osnivanje Hrvatsko-slavonskoga gospodarskoga društva 1841. i u njem Odsjeka za šumarstvo, koji se 1846. godine osamostaljuje pod imenom Hrvatsko-slavonsko šumarsko društvo i otada neprekidno djeluje, danas kao Hrvatsko šumarsko društvo.

2.1.1 Šumarska nastava na Gospodarsko-šumarskom učilištu u Križevcima (1860 – 1898)

Svestranim djelovanjem članova Hrvatsko-slavonskoga šumarskoga društva, a poglavito Franje Šporera, Dragutina Kosa i Ante Tomića osniva se 1860. godine Gospodarsko-šumarsko učilište u Križevcima.

U radu učilišta tri su razvojne faze:

- ⇒ Prvo razdoblje križevačkoga učilišta (1860 – 1877) – cilj je znanstveno i praktično obrazovanje mladih ljudi koji će obavljati službu šumara kod vlastele ili općina ili se pak zaposliti u državnoj službi.
- ⇒ Drugo razdoblje križevačkoga učilišta (1877 – 1894) – 1877. godine prvi se put preustrojava Gospodarsko-šumarsko učilište u Križevcima, te se po novom zakonu ono naziva Kraljevsko gospodarsko i šumarsko učilište u Križevcima.
- ⇒ Treće razdoblje križevačkoga učilišta (1894 – 1898) – razvojem šumarske znanosti i potrebom struke za sve kvalitetnijim šumarskim stručnim osobljem koje će biti priznato od svjetske stručne javnosti provedena je rasprava o školovanju šumarskih stručnjaka. Šumarski odsjek Gospodarskoga i šumarskoga učilišta imao je u svjetskim razmjerima razinu srednje škole, te su šumarski stručnjaci ocijenili da bi bilo oportuno osnovati Šumarsku akademiju pri Sveučilištu u Zagrebu.

Za prestanak je rada Šumarskoga odjela na Kraljevskom gospodarskom i šumarskom učilištu u Križevcima te za otvaranje Šumarske akademije pri Mudroslovnom (Filozofskom) fakultetu Sveučilišta u Zagrebu značajnu ulogu odigrao Zakon o šumama iz 1894.

Naime, tim je zakonom o uređenju šumsko-tehničke službe u paragrafu 6. određeno da se u toj službi za radna mjesta viša od X. činovničkoga razreda traži akademsko obrazovanje, tj. završena visoka šumarska škola. Stoga su sve daljnje aktivnosti bile usmjerene k osnivanju visoke šumarske škole – Šumarske akademije koja je započela raditi u listopadu 1898. godine.

2.1.2 Visokoškolska šumarska nastava na Šumarskoj akademiji pri Mudroslovnom fakultetu Sveučilišta u Zagrebu (1898 – 1919)

Šumarska je akademija otvorena 20. listopada 1898. godine (i danas se na taj datum slavi Dan Šumarskoga fakulteta Sveučilišta u Zagrebu). Tim je činom šumarska nastava u Hrvatskoj dobila sveučilišni status i utemeljena je kao četvrta u nizu na Zagrebačkom sveučilištu.

Isti se dan dogodilo, za Zagrebačko sveučilište i za šumarsku struku, nekoliko značajnih događanja: svečano su otvoreni novoizgrađeni Šumarski dom i Šumarski muzej, održana je redovita 23. glavna skupština Hrvatsko-slavonskoga šumarskoga društva, a obavljeno je i ustoličenje novoga rektora Sveučilišta u Zagrebu za akad. god. 1898/99.

U početku rada Šumarske akademije, kada je studij trajao tri godine i kada je Akademija bila čvrsto vezana uz matični, Filozofski fakultet, dekan Filozofskoga fakulteta bio je istodobno i dekan Šumarske akademije.

Prelaskom na četverogodišnji studij i otvaranjem dvogodišnjega Geodetskoga tečaja 1908. godine Akademija se osamostaljuje i bira pročelnike (koji su imali ulogu dekana) iz redova nastavnika Šumarske akademije.

Nakon I. svjetskoga rata 1918. hrvatsko je šumarstvo u dosta teškom položaju. Raskinuta je politička ovisnost o Austriji i Ugarskoj. Uprava je šuma dotad bila u rukama stranaca, a u Hrvatskoj nema dovoljno stručnoga kadra. U stručnim su se šumarskim krugovima čula čak i razmišljanja da se ne može bez stranih stručnjaka te da i dalje treba zadržati strane šumare koji su upravljali državnim šumama. U tom trenutku profesori Šumarske akademije dr. Andrija Petračić i dr. Đuro Nenadić odlučno zastupaju stajalište kako se treba osoviti na vlastite noge te na vlastitom fakultetu odgajati šumarske stručnjake s najvišom stručnom spremom. Oni odmah pokreću akciju da se Šumarska akademija preustroji u samostalan odjel Filozofskoga fakulteta.

2.1.3 Visokoškolska šumarska nastava na Gospodarsko (Poljoprivredno)-šumarskom fakultetu Sveučilišta u Zagrebu (1919 – 1960)

Dana 31. kolovoza 1919. potpisan je ukaz o osnivanju Gospodarsko-šumarskoga fakulteta Sveučilišta u Zagrebu koji je svoj rad započeo u akad. god. 1919/20. Gospodarsko-šumarski fakultet sastojao se od dva odjela: Gospodarskoga i Šumarskoga, a sjedište je Šumarskoga odjela bilo u zgradi Šumarskoga društva. Dana 27. siječnja 1920. imenovana su prva dva redovita profesora za Šumarski odjel: dr. Andrija Petračić i dr. Đuro Nenadić, a 18. i 19. ožujka prva dva redovita profesora za Gospodarski odjel. 10. travnja 1920. profesorski zbor izabrao je prvim dekanom Gospodarsko-šumarskoga fakulteta prof. dr. sc. Andriju Petračića.

Prvi nastavni plan i program odobren je 7. srpnja 1921, a predmeti su podijeljeni kako slijedi: obvezni predmeti iz kojih se polažu diplomski (državni) ispiti, obvezni predmeti iz kojih se ispiti polažu pojedinačno, obvezni predmeti iz kojih se moraju polaziti samo predavanja i/ili vježbe te neobvezni predmeti koji se studentima samo preporučuju.

Prva se naučna osnova tijekom godina mijenjala, ali su sve do 1947. godine promjene bile manjega značenja. Veće su promjene uvedene u način polaganja ispita tako da su svi ispiti polagani pojedinačno.

Razvoj Fakulteta nije bio harmoničan i bez problema. Gospodarsko-šumarski fakultet raspolagao je skromnim financijskim sredstvima, a već su se 1926. u dnevnim novinama pojavile naznake da vlast u Beogradu namjerava ukinuti Poljoprivredno-šumarski fakultet u Zagrebu. Takve su crne slutnje svoju potvrdu dobile u činjenici da 1926. i 1927. godine nadležno Ministarstvo prosvjete u Beogradu nije za Fakultet pred-

vidjelo nikakva sredstva pa je radi štednje smanjen broj asistenata.

Prilično velike promjene u nastavnom planu dogodile su se 1947. i 1951/52. godine. 11. ožujka 1947. nastava je na Šumarskom odjelu razdijeljena na dva smjera odnosno dvije grupe (to je i početak Drvno-tehnološkoga odsjeka): šumskouzgojni (biološki – B) i šumskoindustrijski (tehnički – T).

Biološki je smjer trebao obrazovati stručnjake za uzgajanje šuma i upravljanje, a tehnički smjer za različite tehničke radove u šumarstvu te stručnjake za drvnu industriju. Navedeni je nastavni plan nastao na izričito traženje operative koja se prva počela na taj plan i tužiti. Stoga su održavani brojni sastanci unutar Fakulteta, a zatim i s predstavnicima operative.

U rujnu 1951. u Sarajevu je održana međufakultetska konferencija šumarskih fakulteta odnosno šumarskih odjela na području tadašnje države. Zaključeno je da šumarski inženjer mora steći široko i potpuno obrazovanje iz triju skupina nastavnih predmeta, iz bioloških, tehničkih i ekonomskoorganizacijskih, a na jednom ili na dva fakulteta treba uvesti poseban odsjek za obrazovanje drvnoindustrijskih stručnjaka. Krilatica predstavnika šumarske operative bila je »do i od osovine javnoga prometa«.

Šumarski odjel Poljoprivredno-šumarskoga fakulteta u Zagrebu podijeljen je na dva odsjeka: Šumskogospodarski odsjek i Drvnoindustrijski odsjek.

2.1.4 Visokoškolska šumarska nastava na Šumarskom fakultetu Sveučilišta u Zagrebu (1960 – 2006)

Zbog sve intenzivnijega razvoja svih gospodarskih grana od 1945. godine, a posebno poljoprivrede i šumarstva, sve je jača potreba za osamostaljenjem poljoprivredne i šumarske visokoškolske nastave u zasebne fakultete. Oba dotadašnja odjela Poljoprivredno-šumarskoga fakulteta, Zakonom objavljenim u Narodnim novinama 8. prosinca 1959, od 1. siječnja 1960. postaju samostalni fakulteti.

Šumarski fakultet Sveučilišta u Zagrebu sastoji se od dva odsjeka: Šumskogospodarskoga i Drvnoindustrijskoga odsjeka. Tijekom godina mijenjali su se nastavni planovi i programi (neki su predmeti nestajali, neki su se dijelili u dva nova predmeta, mijenjala se satnica predavanja, vježbi i terenske nastave i dr.), način i uvjeti polaganja ispita, organizacijska struktura unutar Fakulteta (zavodi, katedre, stolice) i imena odsjeka itd.

2.2 Visokoškolska šumarska nastava na Šumarskom fakultetu Sveučilišta u Zagrebu sukladno Bolonjskoj deklaraciji (od akad. god. 2005/2006)

Akademске godine 2006/07. započeo je nov način studiranja na Šumarskom fakultetu Sveučilišta u Zagrebu, a novi nastavni planovi i programi kreirani su u skladu s Bolonjskom deklaracijom i tadašnjim nasto-

janjem da se visokoškolsko obrazovanje u Hrvatskoj preuстрои unutar prilično čvrstih okvira kojih se trebalo pridržavati.

Šumarski se fakultet Sveučilišta u Zagrebu danas sastoji od Šumarskoga odsjeka i Drvnotehnološkoga odsjeka.

Šumarski je odsjek smješten u novoj zgradi Šumarskoga fakulteta koja je gotovo u potpunosti dovršena nakon punih dvanaest godina (1996. godine na Dan Šumarskoga fakulteta postavljen je kamen temeljac nove zgrade Šumarskoga odsjeka). Time su stvoreni preduvjeti za daljnji razvoj Šumarskoga odsjeka Šumarskoga fakulteta.

Radi organiziranja i unapređenja nastavnoga i znanstvenoistraživačkoga rada na Šumarskom su odsjeku ustrojeni ovi zavodi i njima pripadajući laboratoriji:

- ⇒ Zavod za ekologiju i uzgajanje šuma (Ekološko-pedološki laboratorij i Laboratorij za šumsko sjemenarstvo i rasadničarstvo)
- ⇒ Zavod za izmjeru i uređivanje šuma (Laboratorij za izmjeru šumskih resursa i Laboratorij za daljinska istraživanja i GIS)
- ⇒ Zavod za šumarsku genetiku, dendrologiju i botaniku (Laboratorij za molekularnu biologiju i fiziologiju bilja)
- ⇒ Zavod za šumarske tehnike i tehnologije (Laboratorij za tehničko-tehnološke izmjere u šumarstvu i Laboratorij za šumsku biomasu)
- ⇒ Zavod za zaštitu šuma i lovno gospodarenje (Laboratorij za patologiju drveća i Laboratorij za šumarsku zoologiju)
- ⇒ Zavod za nastavno-pokusne šumske objekte (NPŠO Lipovljani, NPŠO Velika, NPŠO Zalesina, NPŠO Rab, NPŠO Zagreb, Državno lovište Opeke II/39 i Državno lovište Kalifront VIII/6).

2.3 Budućnost sveučilišne šumarske nastave u Hrvatskoj

Kako bi visokoškolska šumarska nastava u Republici Hrvatskoj i u budućnosti bila na razini koja joj nesumnjivo pripada, a to je oduvijek bilo neprikosnovo leadersko mjesto u regiji te jedno od vodećih mjesta među visokoškolskim šumarskim institucijama u Europi, potrebno je:

- ⇒ objektivno, kritički i odmah obaviti detaljnu raščlambu sadašnjega sustava sveučilišne šumarske nastave u Republici Hrvatskoj te utvrditi probleme i manjkavosti
- ⇒ definirati različite mogućnosti rješenja uočenih problema, nedostataka, propusta i manjkavosti uzimajući, s jedne strane, u obzir europske i svjetske smjernice u visokoškolskom obrazovanju i u šumarstvu, a s druge strane, nastojeći zadržati stoljetnu tradiciju, posebnost i prepoznatljivost zagrebačkoga Šumarskoga fakulteta i domaće šumarske struke
- ⇒ odabrati, sa svih stajališta, najprihvatljiviju i najbolju inačicu rješenja pojedinoga determiniranoga problema
- ⇒ imenovati nositelje obveza, aktivnosti i zadataka te definirati rokove njihova izvršenja
- ⇒ utvrditi i osigurati stalno praćenje provedbe pojedine aktivnosti te definirati modele i kriterije prosudbe njihove uspješnosti.

4. Umjesto zaključka

110 godina organizirane visokoškolske šumarske nastave na Sveučilištu u Zagrebu vrlo je vrijedan doseg kojim se malo koji šumarski fakultet u Europi može podičiti. Sveučilišno obrazovanje i šumarska struka u Hrvatskoj su višestruko, snažno i neraskidivo povezani više od stoljeća. To je jedan od ključnih razloga današnje ljepote, prirodnosti i kakvoće naših hrvatskih nizinskih, prigorско-brdskih, gorskih, mediteranskih i submediteranskih šuma.

Neizmjerne vrijedno prirodno bogatstvo koje smo u nasljeđe dobili od svojih pradjedova, djedova i očeva moramo, želimo i hoćemo ostaviti svojim sinovima, unucima i praunucima u još boljem stanju nego što smo ga preuzeli jer je to naša moralna i stručna obveza. U tom će nam svakako od neizmjerne pomoći biti šumarska tradicija vrijedna strahopoštovanja, šumarska tradicija oplemenjena suvremenim spoznajama šumarske znanosti i primijenjena u šumarskoj operativi djelovanjem inženjera, magistara struke, magistara specijalista i doktora znanosti poniklih na našem hrvatskom, zagrebačkom Šumarskom fakultetu.

Tibor Pentek i Tomislav Poršinsky