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PEDESETPETA OBLJETNICA UTEMELJENJA HRVATSKOG METALURŠKOG DRUŠTVA (HMD)1952. – 2007. THE FIFTYFIFTH ANNIVERSARY OF THE FOUNDATION OF CROATIAN METALLURGICAL SOCIETY (CMS)1952 – 2007

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SAŽETAK – Cilj članka je dati osvrt na utemeljenje i razvitak Hrvatskog metalurškog društva (HMD) iz Društva inženjera i tehničara Željezara Sisak 1952. – 2007. Istodobno uz praćenje stanja hrvatske metalurgije, ciljeve i zadatke HMD-a, navode se i glavne aktivnosti Društva: objavljivanje časopisa *Metalurgija*, međunarodni simpoziji „Materijali i metalurgija“, te plodonosna suradnja s nizom institucija u tuzemstvu i inozemstvu. Dan je i podatak da je 1990. u Hrvatskoj bila ukupna proizvodnja 2.500.000 tona raznih metalurških proizvoda (bez odljevaka), a u 2007. samo 230.000 t, tj. na razini ispod 10%.

Osvrt je i na nekoliko samoinicijativnih bezuspješnih tiskovnih priopćenja javnosti članova Društva, u cilju opstanka i revitalizacije hrvatske metalurgije.

Ključne riječi: Društvo, zadaci, metalurgija, izdavačka djelatnost

ABSTRACT – The goal of this article is to give an overview of the foundation and development of Croatian Metallurgical Society (CMS) from the Society of Engineers and Technicians of Željezara Sisak 1952. – 2007. With monitoring of the condition of Croatian Metallurgy, goals and tasks of CMS, the main activities of the Society are also set out: publishing of the magazine *Metalurgija*, international symposiums “Materials and Metallurgy”, and productive cooperation with an array of institutions in Croatia and abroad. The data were also given that the total production in Croatia in 1990 was 2,500,000 tons of various metallurgical products (without cast iron products), and only 230,000 t in 2007, i.e. at the level below 10%.

The overview includes also several futile press notices to the public made by the members of the Society of their own initiative, in order to sustain and revitalize the Croatian metallurgy.

Key words: Society, tasks, metallurgy, publishing activity

UVOD

Postignuća u metalurgiji imala su veliki utjecaj na razvoj civilizacije, što je dokaz da su prema vrsti metalurške proizvodnje nazvane etape čovječanstva.

9000 godina metalurgije u svijetu, a preko 6000 godina na tlu današnje Hrvatske dokazuje da je metalurgija (kao struka) jedna od najstarijih ljudskih djelatnosti [1, 2].

Na području Hrvatske, na položaju Gradac – Vučedol, registrirana je iz prapovijesnog doba metalurška radionica s prvom serijskom proizvodnjom metala, za sada najstarija takva u Europi (3000-2200. god. pr. Kr.). Metalurška djelatnost je tada imala veliki procvat i iz Vučedola se proširila po velikom dijelu

INTRODUCTION

Achievements in metallurgy had a great impact on the development of civilization, which proves that the stages of mankind were named after the type of metallurgical production.

9000 years of metallurgy in the world, and over 6000 years on the territory of today's Croatia is the evidence that metallurgy (as profession) is one of the oldest human activities [1, 2].

On the territory of Croatia, at the location of Gradac – Vučedol, there was registered a metallurgical workshop from ancient times with the first serial production of metal, the first one of a kind for now in Europe (3000–2200 B.C.). Metallurgical activity had its great boom and it spread from Vučedol over a large part of Europe. With other nations, it is

Europe. Uz ostale narode, važno je istaknuti razvijenu metalurgiju kod Kelta, a poslije i kod Rimljana.

U rimsko doba Sisak (Siscia) i njegova šira okoliša postaju jedno od najvećih metalurških središta čitava carstva (metalurške radionice za izradbu oružja i oruđa i kovnice novca) s uhodanim vodenim i cestovnim komunikacijama za dopremu ingota i otpremu gotovih proizvoda.

Poslije propasti Rimskog Carstva, metalurška djelatnost zamire da bi se obnovila krajem 10. st. dolaskom Sasa. To je doba razvitka metalurgije u Hrvata. U srednjovjekovnom razdoblju ističe se iznovice na širem području Siska i Banovine izradba prve talionice i kovnice novca, kada je korištena željezna, olovna, bakrena i srebrna ruda. Veliki je doprinos dao grof Petar Zrinski, čiji su metalurški pogoni bili u Banovini i u Gorskom kotaru (Čabar).

Prodorom Turaka ta djelatnost zamire da bi iznovice oživjela u 18. stoljeću. Tada se izgrađuju visoke peći za proizvodnju željeza, talionice bakra itd. Posebice je bilo razvijeno lijevanje zvona (a i topova). Puštanje u pogon lijevaonice u Rijeci 1853, proizvodnja i lijevanje aluminijske u Lozovcu 1937. i visoke peći u Capragu 1939. mogu se smatrati prvim metalurškim pogonima na teritoriju današnje Hrvatske, u industrijskom smislu riječi.

U razdoblju poslije 1945. do 1990. godine Hrvatska je imala više metalurških tvrtki i prihvatljivu proizvodnju. U bivšoj Jugoslaviji Hrvatska je bila jedini proizvođač bešavnih cijevi između 34 države u svijetu – Željezara Sisak, Sisak, s proizvodnjom oko 150.000 t godišnje. Bila je i značajni proizvođač šavnih cijevi i preko 200.000 t godišnje, uz hladnu preradu (vučenje, pilgerovanje) oko 10.000 t godišnje [3]. Proizvodnja čelika (2 Siemens-Martinove peći) i 1 elektropeč uz 2 visoke peći (volumena do 150 m³) bila je oko 360.000 t godišnje, a u Koksari Bakar proizvodnja i do 850.000 t koksa godišnje.

Željezara Split je bila specijalizirana za proizvodnju betonskog čelika. Na 2 elektropeći proizvodnja čelika je bila i do 120.000 t godišnje. U toploj valjaonici je prerađeno i do 80.000 t/god., uz dodatnih i do 30.000 t/god. hladne prerade.

Radila je i Valjaonica čelika Kumrovec (betonski čelik) s preradom do 40.000 t/god., te valjaonica šavnih cijevi Podpičan s proizvodnjom do 12.000 t/god.

Ukupno je u Hrvatskoj proizvedeno do 500.000 t/god. čelika i prerađeno u završne proizvode (šavne i bešavne cijevi te betonski čelik) ovih 500.000 t/god. (stvarna ukupna potrošnja čelika u Hrvatskoj oko 700.000 t/god.).

U Tvornici lakih metala (TLM) Šibenik korišteni su kapaciteti za elektrolizu glinice iznad 80.000 t/god. te oblikovanje deformacijom aluminijske jednako iznad 80.000 t/god. Značajna je bila proizvodnja odljevaka i do 120.000 t/god. Nazočna je bila i proizvodnja ferolegura u Tvornici elektroda i ferolegura Šibenik te Tvornici ferolegura u Dugom Ratu (preko 150.000 t/god. uz dodatnih 10.000 t elektroda).

important to point out metallurgy developed with the Celts, and afterwards with the Romans.

At the Roman time, Sisak (Siscia) and its wide environment become one of the biggest metallurgical centres of the entire empire (metallurgical workshops for making of arms and tools and coin mints) with established waterways and road communications for delivery of ingots and transportation of final products.

After the fall of the Roman Empire, metallurgical activity dies out to be renewed by the end of 10th century upon arrival of the Saxons. This is the development period of metallurgy with the Croats. In the Middle Ages, the first coin foundry and mint can be pointed out again on the broad territory of Sisak and Banovina, when iron, lead, copper and silver ore was being used. The count Petar Zrinski, whose metallurgical plants were in Banovina and in Gorski Kotar (Čabar), made a great contribution.

With penetration of the Turks this activity dies out, to live up again in 18th century. Then, high furnaces for steel production are being built, cooper foundries etc. Bell (and cannon) casting was especially developed. Putting a foundry in Rijeka in operation in 1853, aluminium production and foundry in Lozovac in 1937 and high furnaces in Caprag in 1939 can be considered the first metallurgical plants on the territory of today's Croatia, in the industrial sense of the word.

In the period after 1945 until 1990 Croatia had several metallurgical companies and acceptable production. In ex-Yugoslavia Croatia was the only manufacturer of seamless pipes among 34 countries in the world – Željezara Sisak/Steel Works, Sisak, with an annual production of about 150,000 t. It was an important manufacturer of welded pipes of over 200,000 t per year, in addition to cold processing (drawing, pilgering) about 10,000 t per year [3]. Steel production (2 Siemens-Martin furnaces) and 1 electric furnace together with 2 high furnaces (of 150 m³) was about 360,000 t per year, and up to 850,000 t of coke per year were produced in Koksara/Coke Plant Bakar.

Željezara Split was specialized in production of rolled reinforcing steel. On 2 electric furnaces the steel production was up to 120,000 t per year. In warm rolling mill there were processed up to 80,000 t/year, in addition to almost 30,000 t/year of cold processing.

Steel rolling mill Kumrovec (rolled reinforcing steel) was also active processing up to 40,000 t/year, and welded pipe rolling mill Podpičan with a production of up to 12,000 t/year.

Up to 500,000 t/year of steel in total were produced in Croatia and processed into final products (welded and seamless pipes, and concrete steel) of these 500,000 t/year (actual total steel consumption in Croatia about 700,000 t/year).

In Tvornica lakih metala (TLM)/Light Metal Factory Šibenik there were used capacities for alumina electrolysis over 80,000 t/year and moulding by aluminium deformation also over 80,000 t/year. The production of castings was substantial, up to 120,000 t/year. Ferro-alloys were also produced in the Factory of Electrodes and Ferro-Alloys Šibenik and the Factory of Ferro-Alloys in Dugi Rat (over 150,000 t/year with additional 10,000 t electrodes).

Tijekom rata 1991-1995. dolazi do zatvaranja više tvrtki i drastičnog pada proizvodnje. Tako npr. 1994. godine proizvodnja bešavnih cijevi u Željezariji Sisak bila je oko 28.000 t/god. a šavnih ispod 70.000 t/god. te hladna prerada oko 2.000 t/god. Naknadno je demontirana Koksara Bakar, obje visoke peći s aglomeracijom, obje SM peći, valjaonica traka i gredica s 2 potisne peći s proizvodnjom traka i gredica preko 250.000 t/god., laka pruga valjaonice bešavnih cijevi (promjera 21-100 mm, proizvodnje do 35.000 t/god.). Dvaput je neuspješno privatizirana (Truboimpeks i Mechel). U 2007. po treći put – Commercial Metals Company.

Srušene su i obje tvornice ferolegura, u Šibeniku i Dugom Ratu. Valjaonica Kumrovec je također prestala s proizvodnjom.

U TLM-u tijekom rata uništena je elektroliza aluminija, a u 2007. oblikovanje deformacijom je bilo 55.800 t. Bilo je više pokušaja privatizacije, posljednja od Hrvatskog konzorcija (više tvrtki).

U Željezari Split izvedena je rekonstrukcija čeličane (1 elektropeć s lončastom peći s proizvodnjom do 190.000 t/god.), te valjaonica betonskog čelika (konti pruga) s kapacitetom jednako do 190.000 t/god. Krajem 2007. godine je privatizirana – tvrtka Zlomreks.

Proizvodnja čelika u Hrvatskoj (odnosi se na Željezare Sisak i Split) u 2007. godini je oko 80.000 t/god. (prije oko 500.000 t/god.) a završnih proizvoda (bešavne cijevi – 18.500 t i šavne 16.000 t/god., hladno prerađene cijevi 2.500 t, betonski čelik 62.000 t) tj. ukupna prerada čelika oko 100.000 t (prije rata oko 500.000 t/god.).

Proizvodnja odljevaka se polako oporavlja i danas je otprilike na 65% predratne. Valjaonica šavnih cijevi Podpičan sa 100% iskorištenjem kapaciteta od 12.000 t/god. uspješno posluje, kao i Vatrostalna Sisak d.d.

Za razliku od drugih tranzicijskih država (Slovenije, Češke, Slovačke, Poljske itd.) gdje je restrukturiranje metalurgije izvedeno vrlo brzo i učinkovito, u Hrvatskoj ovo jako kasni. Naime, tek u 2007. godini preko Europske unije prihvaćen je plan i program restrukturiranja hrvatske crne metalurgije.

Uspoređujući današnje stanje metalurgije u Hrvatskoj sa svjetskim postignućima, može se uočiti veliko zaostajanje u razvitku od trideset i više godina.

Mnoge države koje kao i Hrvatska nemaju prirodnih resursa za razvitak metalurgije daju veliku pozornost metalurgiji (Austrija, Švicarska, Mađarska i mnoge druge). Hrvatska poslije nekoliko neuspješnih sanacija iznovice je privatizirala metalurške tvrtke. Budućnost hrvatske metalurgije ovisi isključivo o nakanama većinom inozemnih vlasnika.

Sve struke prati i razvitak udruga čiji su ciljevi promicanje stručne i znanstvene djelatnosti, popularizacija, razvitak struke, obrazovanje članova itd. To

During the war 1991-1995, several companies are being closed and the production is drastically falling. Thus, e.g. in 1994 the production of welded pipes was in Steel works Sisak about 28,000 t/year and seamless below 70,000 t/year and cold processing about 2,000 t/year. Koksara Bakar gets dismantled afterwards, both high furnaces with agglomeration, both SM furnaces, strip and billet rolling mill with 2 continuous type furnaces with production of billets and strips of over 250,000 t/year, light section mill of welded pipe rolling mill (21-100 mm diameter, production up to 35,000 t/year). It was twice privatized without success (TRUBOIMPEKS and MECHEL). In 2007 for the third time – Commercial Metals Company.

Both ferro-alloy factories were blown down, in Šibenik and Dugi Rat. Rolling mill Kumrovec stopped with its production, too.

In TLM during the war there was destroyed aluminium electrolysis, and in 2007 moulding by deformation was 55,800 t. There were several attempts of privatization, the last one by the Croatian consortium (several companies).

In Željezara Split, the steel plant was reconstructed (1 electric furnace with a pot furnace with production of up to 190,000 t/year), and a rolling mill (continuous track) with equal capacity of up to 190,000 t/year. By the end of 2007 it was privatized – the Zlomreks company.

Steel production in Croatia (it refers to Željezara Sisak and Split) in 2007 lies about 80,000 t/year (earlier about 500,000 t/year) and final products (seamless pipes – 18,500 t and welded 16,000 t/year, cold processed pipes 2,500 t, rolled reinforcing steel 62,000 t) i.e. steel production in total about 100,000 t (in relation to about 500,000 t/year before the war).

The production of castings is slowly recovering and today it is at the level of about 65% of the one pre-war. Welded pipe rolling mill Podpičan is successfully operating with 100% capacity utilization of 12,000 t/year, as well as Vatrostalna Sisak d.d.

Unlike other transition countries (Slovenia, Czech Republic, Slovakia, Poland etc.) where metallurgy was restructured very quickly and efficiently, this happened very late in Croatia. Namely, as late as in 2007 the restructuring plan and program of the Croatian black metallurgy was accepted via European Union.

Comparing today's condition of metallurgy in Croatia with the world achievements, great lag in development of thirty years and more can be perceived.

Many countries that, like Croatia, have no natural resources for metallurgy development pay huge attention to metallurgy (Austria, Switzerland, Hungary and many other). After several unsuccessful restorations, Croatia privatized metallurgical companies again. The future of the Croatian metallurgy depends exclusively on intentions of mostly foreign owners.

All the professions are followed also by development of associations with an aim to promote professional and scientific activity, popularization, development of profession, education of members etc. This refers to the profession of

se odnosi i na struku metalurgije. Povijest razvitka metalurške udruge vezana je za zajednički razvitak s udrugama tehničkih struka u Hrvatskoj.

Cilj članka je dati povijest utemeljenja Hrvatskog metalurškog društva (HMD) i doprinosti njegovom rastu, razvoju i postignućima tijekom proteklih 55 godina.

UTEMELJENJE I RAZVITAK METALURŠKOG DRUŠTVA

U drugoj polovini 19. stoljeća, kad se u Europi i svijetu razbuktao industrijski razvoj, i u Hrvatsku, a u okviru Austro-Ugarske Monarhije, dospjeli su odjeci tehnološkog napretka. Svjesna da je za napredak potrebno uložiti puno vlastitog truda, skupina rodoljubnih i naprednih tehničkih stručnjaka započela je već 1875. godine pripreme za okupljanje inženjera i arhitekata. Kad je konačno ondašnja Zemaljska vlada potvrdila pravila, konstituiran je „Klub inžinirah i arhitektah“ – 2.3.1878.

Na taj način još 1878. godine realizirana je vrijedna i dalekovidna ideja, koja je usmjerila naš tehnički i tehnološki razvoj prema progresu, ubrzavajući taj razvoj koliko god su to materijalne, pa i političke prilike dopuštale.

„Klub inžinirah i arhitektah“ je poslije Prvog svjetskog rata izmijenio naziv u Savez inženjerskih društava Kraljevine Jugoslavije. Za vrijeme Drugog svjetskog rata naziv je Hrvatsko društvo inženjera.

Na Osnivačkoj skupštini 1946. godine u Zagrebu obnavljanjem rada pojedinih sekcija utemeljeno je Društvo inženjera i tehničara Hrvatske (DITH).

U to vrijeme u Hrvatskoj dolazi do većih gospodarskih aktivnosti i industrijalizacije uz izgradnju raznih postrojenja i pogona u svim strukama. Ovo prati potreba i utemeljenje odgovarajućih strukovnih udruga.

Navodi se nekoliko primjera [4]:

- Udruga hrvatskih rudarskih inženjera (današnji naziv) nastala je iz sekcije rudara DITH-a 1948.
- Hrvatsko geološko društvo utemeljeno je 1951. godine
- Hrvatsko geodetsko društvo u 1953.
- Iz sekcije električara DITH-a utemeljeno je 1953. Elektrotehničko društvo Hrvatske
- Hrvatsko udruženje za ljevarstvo (današnji naziv) utemeljeno je 1953.
- Hrvatsko društvo za tehniku zavarivanja (jednako današnji naziv) isto 1953.
- Itd.

Budući da je utemeljeno više samostojnih društava, to i Društvo inženjera i tehničara Hrvatske (DITH) u 1953. mijenja naziv u Savez društava inženjera i tehničara Hrvatske (SDITH), a već 1956. u Savez inženjera i tehničara Hrvatske (SITH). Ovo

metallurgy as well. The history of development of a metallurgical association is connected to the joint development with associations of technical professions in Croatia.

The goal of the article is to give an account of the foundation history of Croatian Metallurgical Society (CMS) and to contribute to its growth, development and achievements during the past 55 years.

FOUNDATION AND DEVELOPMENT OF METALLURGICAL SOCIETY

In the second half of the 19th century when Europe and the world underwent the Industrial Revolution, echoes of technological progress also reached Croatia within the framework of the Austro-Hungarian Monarchy. Being aware that advancement requires invested effort, a group of patriotic and progressive technical experts began preparations for an organization of engineers and architects in 1875. When the Territorial Government granted permission, the Club of Engineers and Architects was founded on March 2, 1878.

Thus in 1878, a worthwhile and farsighted idea was realized which directed our technical and technological development toward progress, accelerating development to the extent permitted by material and political conditions.

The Club of Engineers and Architects changed its name after the First World War into the Engineer Associations Union of the Kingdom of Yugoslavia. During the Second World War it was called the Croatian Engineers Society.

The Society of Engineers and Technicians of Croatia (DITH) was founded at the Foundation Assembly in 1946 in Zagreb by restoring the work of individual sections.

At that time, it comes to large economic activities and industrialization with erecting various facilities and plants in all professions. This is followed by the need and foundation of corresponding professional associations.

Let us mention several examples [4]:

- Croatian Mining Engineers Association (today's name) originated from the miners section of DITH in 1948
- Croatian Geological Society founded in 1951
- Croatian Geodetic Society in 1953
- Electro-Technical Society of Croatia was founded from the electricians sections of DITH in 1953
- Croatian Foundry Association (today's name) was founded in 1953
- Croatian Welding Technique Society (also today's name) in 1953 as well
- Etc.

Since several independent societies were founded, the Society of Engineers and Technicians of Croatia (DITH) changes its name in 1953 into the Societies Union of Engineers and Technicians of Croatia (SDITH), and as early as in 1956 into the Union of Engineers and Technicians of Croatia (SITH). This name was retained until 1992 when

ime se zadržalo do 1992. kad je usvojen i današnji naziv Hrvatski inženjerski savez (HIS) [5].

Što se tiče struke metalurgije, treba istaknuti da je bez metalurgije bila nezamisliva realizacija plana ubrzanog industrijskog razvitka Hrvatske poslije Drugog svjetskog rata. Već 1947. planirana je uz postojeću Talionicu Caprag izgradnja integralne Željezare Sisak s glavnim završnim proizvodom „bešavne cijevi“.

Predmnijevao se završetak svih glavnih infrastrukturnih i proizvodnih objekata do kraja 1952. Planirana dinamika izgradnje se djelomice realizirala, tako da je puštena u rad samo Laka pruga (cijevi promjera 21-100 mm) valjaonice bešavnih cijevi 1952. [6, 7]

Poteškoće su se prvenstveno odnosile na nedostatak financijskih sredstava, investicijske opreme, tehničke dokumentacije i u znaku pogoršanih političkih odnosa sa SSSR-om. Posebice se osjećao nedostatak stručnjaka svih profila.

Tadašnji malobrojni stručnjaci Željezare Sisak, inženjeri i tehničari, mudro su procijenili važnost organiziranog strukovnog rada, te je održana Osnivačka skupština 1952. i utemeljeno je Društvo inženjera i tehničara Željezare Sisak (DITŽS).

Detaljni osvrt o daljnjim aktivnostima Društva može se iščitati iz „Referata za skupštinu podružnice DIT-a, Kombinata Željezare Sisak u povodu 20-godišnjice postojanja DIT-a“. Referat je održao tadašnji predsjednik DIT-a ŽS Dž. Đozić 22. travnja 1972. na Skupštini DIT-a ŽS povodom 20-godišnjice utemeljenja. [8, 9, 10]

Citiraju se neki izvaci iz tog referata. [8]

„Društvo inženjera i tehničara Sisak Željezare Sisak je osnovano 1952., u vrijeme kad su u Željezari Sisak radile visoke peći, a Čeličana i Valjaonica bešavnih cijevi bile u fazi izgradnje, odnosno Laka pruga pred puštanjem u proizvodnju.

Tehničkog kadra, odnosno inženjera i tehničara nije tada bilo u dovoljnom broju, ali onaj mali broj je počeo s organiziranim društvenim radom prije svega u želji da se stručno osposobljavaju tehnički kadrovi Željezare...

Svake godine održano je po nekoliko stručnih predavanja, koja su se uglavnom odnosila na upoznavanje s metalurškim procesima, a predavači su bili ili strani stručnjaci ili iskusni članovi društva. Posjeta predavanjima bila je dobra.

Aktivnim radom isticali su se u prvih nekoliko godina: F. Knežević, V. Logomerac, J. Gradišar, D. Kunstelj, M. Kirinić, T. Viličić, Đ. Lončar, Z. Selenec i drugi.

Već nakon 6 do 7 godina postojanjem Društva, zahvaljujući naglom proširenju željezare, odnosno dolaskom u Željezaru sve većeg broj inženjera i tehničara kao i radu tadašnjeg Upravnog odbora došlo je do veće aktivnosti društva.

today's name of the Croatian Engineers Union (HIS) was adopted [5].

As for the profession of metallurgy, it needs to be pointed out that the plan realization of rapid industrial development of Croatia after the Second World War was unthinkable without metallurgy. As early as in 1947 it was planned to build an integral Željezara Sisak with the main final product “seamless pipes” near the existing Foundry Caprag.

All the major infrastructural and production facilities were anticipated to be finished by the end of 1952. Planned dynamics of construction was partly realized, so that only the Light Section Mill (pipes of 21-100 mm diameter) of seamless pipe rolling mill was put into operation in 1952. [6, 7]

Difficulties referred primarily to the lack of financial resources, investment equipment, technical documentation and they were marked by deteriorated political relations with USSR. The lack of experts of all profiles was felt in particular.

Few experts of Željezara Sisak then, engineers and technicians, made a wise estimate of the importance of organized professional work, so the Foundation Assembly was held in 1952 and the Society of Engineers and Technicians of Željezara Sisak (DITŽS) was founded.

A detailed overview of further activities of the Society can be found in the Report for the Subsidiary Assembly of DIT, Željezara Sisak Complex for 20th Anniversary of DIT“. The report was presented by the president of DIT ŽS then, Dž. Đozić, on 22 April 1972 at the Assembly of DIT ŽS for 20th anniversary of foundation. [8, 9, 10]

Here are the quotes of some excerpts from this report. [8]

„The Society of Engineers and Technicians Željezara Sisak was founded in 1952, in the time when the blast furnaces, steelwork and seamless tube rolling mill were in construction, i.e. light section mill was just about to be put in operation.

Technical staff, i.e. engineers and technicians of that time were insufficient but although small in number they started with organized social work, first of all wanting to enable professional training for technical staff in the Steel Works Sisak.

Every year there were held several professional lectures, mostly to familiarize the members with metallurgical processes, and the lecturers used to be foreign experts or some experienced members of the Society. Attendance rate at the lectures was good.

F. Knežević, V. Logomerac, J. Gradišar, D. Kunstelj, M. Kirinić, T. Viličić, Đ. Lončar, Z. Selenec and some other distinguished themselves through their active work during the first several years.

As early as 6-7 years after its foundation, thanks to sudden expanding of steel works, i.e. upon arrival of the growing number of engineers and technicians and the work of the Managing Board then, there came to an increased social activity.

U periodu 1959. i 1960. održavano je u prosjeku svaka dva mjeseca po jedno stručno predavanje, na kojima su odaziv i učešće članova bili vrlo dobri.

Predavači su bili uglavnom iskusni inženjeri našeg Društva. Društvo je bilo aktivno, što se vidi i iz podatka da je čak 98% stručnjaka koji su 1960. radili u Željezari Sisak bilo učlanjeno u DIT. U Društvu je bilo ukupno 199 članova, od čega 58 diplomiranih inženjera, 124 tehničara i 17 ostalih.

Poslije toga živog i relativno uspješnog perioda došlo je do popuštanja u radu, tako da se 1962. 10-godišnja jubilarna skupština nije ni održala.

Otada Društvo egzistira kao podružnica DIT-a Sisak, koje je te godine i osnovan.

Ipak, 1962. podružnica je pokrenula prvi put izdavanje jednog stručnog časopisa. Tada je u izdanju podružnica uz pomoć redakcije Vjesnika Željezara počeo izlaziti časopis „Metalurgija.“

U godini osnivanja – 1962. – izašao je jedan broj. Redakcija u njemu piše (citirano) [8, 11]:

„Danas, kad izlazi prvi broj časopisa za stručna i društvena pitanja Željezare i kad se u tom broju pojavljuju suradnici iz redova stručnjaka Željezare, tako da će u svakom broju stručnih priloga biti različit po tretmanu teme – možemo ustvrditi da imamo formiran lik stručnog radnika i stručnjaka Željezare Sisak koji je u svojim nastojanjima vezan za daljnji uspješniji rad svog kolektiva. Časopis Metalurgija pojavljuje se baš zbog toga da na svojim stranicama razvija i pomaže sagledavanju pojedinih pitanja.

Sada, kad se nalazimo pred velikim zadacima u proširenju kolektiva, kad smo uspjeli kao cjelina povećati reprodukciju, kad uvodimo nove metode rada u svim oblicima, časopis Metalurgija će na svojim stranicama obrađivati stručne teme iz proizvodnje željeza i čelika, kao i svih tehničkih i ekonomskih nauka vezanih za tu proizvodnju, što znači da će tretirati problematiku iz područja metalurgije, strojarstva, elektrotehnike, energetike, kemije, organizacije rada, ekonomike, analize tržišta, rada društveno-političkih organizacija Željezare itd.

Članovi kolektiva mogu na ovoj stručnoj tribini iznijeti svoja iskustva, studije i rješenja koja će koristiti razvitku Željezare i pridonijeti usavršavanju i oblikovanju industrijskog lika članova kolektiva.

Uvjereni smo da će ovaj časopis primiti svi naši članovi i uvjereni smo da će svojim priložima pridonijeti da Metalurgija izgradi određenu fizionomiju i tako postane stručni list koji će opravdati svoje izlaženje.“

Za daljnje djelatnosti DIT-a Željezare Sisak citira se iznovice [8]:

„1962. početo je i s izdavanjem bibliografije, na taj način da su posebno zaduženi članovi podružnice pratili stručne časopise u stručnoj knjižnici, sačinjavali kratke izvratke iz njih i ovi inserti su se u obliku

In the period from 1959 to 1960, one professional lecture was read every two months on the average and a good audience response was usually noted.

The lecturers were mostly experienced engineers from our Society. The Society was active, which can be seen in the documents. No less than 98% of experts working in Željezara Sisak in 1960 were members of the Society of Engineers and Technicians. The Society had 199 members in total, including 58 graduate engineers, 124 technicians and 17 other members.

After this dynamic and relatively successful period, there came a period of work regression, so the anniversary assembly could not be held in 1962.

Since then the Society has existed as a subsidiary of the Society of Engineers and Technicians – Sisak, which was established just in the same year.

Still, in 1962, the subsidiary initiated for the first time one professional magazine to be published. Then, the subsidiary started to publish the magazine of Metalurgija with the aid of Željezara Herald editorial board.

In 1962, the year of foundation, only one issue was published, in which the Editorial Board gave a short review (quote) [8, 11]:

“Today, when the very first issue of the periodical for technical and social affairs of Željezara Sisak is coming out of the print, and when this issue presents contributions of experts from Željezara Sisak, so that in every issue there will be a number of articles varying by the way of treating a subject – we can claim to have a formed expert figure who in his endeavours is committed to the further successful operation of his company. The journal Metalurgija is published exactly with the purpose to develop and support the apprehending of certain issues on its pages.

Now that we are facing huge tasks of expanding our company and have managed as a whole to increase production rates, as well as introducing new methods in all forms, the pages of Metalurgija shall be dealing with technical issues of iron and steel making, as well as with all other technical and economic sciences that this periodical shall discuss issued from the fields of metallurgy, mechanical engineering, electrical engineering, energy, chemistry, organization of work, economics, market analysis, activities of social and political bodies of Željezara Sisak, etc.

Employees of the Sisak iron and steel works may use the journal to present their experiences, their studies and solutions that may be useful for its development and contribute to the improvement and formation of the industrial character of the company members.

We believe that this journal will be accepted by all our members, and that their contributions will help the Metalurgija to build its specific character and thus become a technical journal worthy of its publishing.”

Further activities of the Society of Engineers and Technicians of Željezara Sisak are quoted again [8]:

“However, in 1962 the publishing of bibliography was initiated. Some specially entrusted members of the Subs-

biltena davali inženjerima i tehničarima, kako bi mogli biti upoznati sa sadržajem Časopisa.

Razdoblje od 1962. do 1967. bilo je dosta slabo u radu naše podružnice, a svelo se je na to da je održano nekoliko predavanja i ekskurzija. Već ranije je u traženju sistema rada, a naročito zahvaljujući okolnosti da se je kombinat naglo razvijao i da je priliv stručnjaka u kombinat bivao sve veći, došlo do toga da se pokuša s radom po sekcijama. 1967. društvu je uspjelo osnovati 4 sekcije, od kojih su sekcija građevinara i naročito sekcija metalurga počele aktivnije raditi, pa se ovim dvjema sekcijama treba odati priznanje za uspjehe postignute u radu naše podružnice u posljednje 3 do 4 godine.“ (završen citat)

U organizaciji i pojačanim akcijama Sekcije metalurga DITŽS-a, važnu ulogu odigrali su tada vodeći metalurzi: D. Stambolija, J. Krajcar, I. Đukić, S. Kovačić, I. Mamuzić (učlanjen u DITŽS još 1962., što znači da obilježava 45. obljetnicu članstva) i drugi.

Posebice, izuzetan doprinos u cjelokupnom razvoju i djelatnosti DITŽS-a, DIT-a Sisak, kao i naknadno metalurškog društva dao je Branko Markušić, dipl.ing. Izabran je još 1958. za tajnika DITŽS-a, kasnije za tajnika DIT-a Sisak, koju funkciju i danas obnaša. B. Markušić obilježava 50 godina vjernosti našim udrugama.

Treba istaći i dugogodišnju djelatnost i doprinos razvitku metalurškog društva mr. sc. Vladimira Ferketića. Počevši od 1967., bio je poslije i predsjednik DITŽS-a, zastupnik u Republičkim društvima, a uz više funkcija bio je i prvi izabrani tajnik Hrvatskog metalurškog društva 1992. Preko 30 godina posvetio je djelatnosti metalurške udruge.

U međuvremenu na hrvatskoj razini su (tadašnji nazivi društava) Društvo rudarskih inženjera i tehničara Hrvatske, Društvo geoloških inženjera i tehničara Hrvatske, te Društvo inženjera i tehničara Sisak (DIT Sisak) – sekcija metalurga se povezala u Savez rudarskih, geoloških, metalurških inženjera i tehničara Hrvatske (SRGMITH). Naš Savez je bio i članica Saveza rudarskih, geoloških, metalurških inženjera i tehničara Jugoslavije (SRGMITH Ju), a naša krovna organizacija je bila Savez inženjera i tehničara Hrvatske (SITH).

Budući da je izvan Sekcije metalurga DIT-a ŽS, odnosno DIT-a Sisak ostalo neučlanjeno rudarskih, geoloških a i metalurških inženjera i tehničara (zaposleni izvan Željezare Sisak), to je prof. Ilija Mamuzić pokrenuo inicijativu za utemeljenje Društva metalurških, rudarskih i geoloških inženjera i tehničara Sisak (DMRGIT – Sisak). To je već realizirano 1978. Za predsjednika Društva je izabran prof. I. Mamuzić, a za tajnika V. Ferketić, dipl.ing. Ovo je Društvo postalo članica SRGMITH-a, kao i

diary followed professional journals in reference library; compiled short extracts, which were delivered as bulletins to engineers and technicians in order to inform them with the contents of the Journal.

The period from 1962 to 1967 was rather bad regarding our Subsidiary, and was reduced to some lectures and collective trips. Earlier, in looking for a system of function of the society, and especially thanks to the circumstances that the integrated works was in a rapid development and experts' inflow rather increasing, we tried to work in sections. In 1967, the Society successfully founded 4 sections, and two of them – the civil constructors' section and especially metallurgists' section increased their activity, so these two sections should be given due credit for achieved success through their work in our Subsidiary in the course of last 3-4 years.“ (unquote)

An important role in organization and intensified actions of the Metallurgists' Section of DITŽS was played by leading metallurgists then: D. Stambolija, J. Krajcar, I. Đukić, S. Kovačić, I. Mamuzić (became a member of DITŽS as early as in 1962, which means that he celebrates 45th anniversary of membership) and others.

In particular, extreme contribution to the entire development and activity of DITŽS, DIT Sisak, as well as metallurgical society later on was given by Branko Markušić, BS. As early as in 1958 he was elected secretary of DITŽS, and later secretary of DIT Sisak, and this function he still holds today. B. Markušić celebrates 50 years of loyalty to our associations.

Many years of activity and contribution to the development of metallurgical society and more by Vladimir Ferketić M.S. need to be pointed out as well. Having started since 1967, he was president of DITŽS later, representative in Republic societies, and in addition to several functions he was also elected the first secretary of Croatian Metallurgical Society in 1992. Over 30 years he dedicated to the activity of metallurgical association.

In the meantime at the Croatian level there exist (former names of societies) the Society of Mining Engineers and Technicians of Croatia, the Society of Geological Engineers and Technicians of Croatia, and the Society of Engineers and Technicians Sisak (DIT Sisak) – the metallurgists' section joined the Union of Mining, Geological, Metallurgical Engineers and Technicians of Croatia (SRGMITH). Our Union was also a member of the Union of Mining, Geological, Metallurgical Engineers and Technicians of Yugoslavia (SRGMITH Ju), and our roof organization was the Union of Engineers and Technicians of Croatia (SITH).

Since there were mining, geological and metallurgical engineers and technicians (employed outside of Željezara Sisak) who were not members of the Metallurgists' Section of DIT ŽS, or DIT Sisak, prof. Ilija Mamuzić initiated the foundation of the Society of Metallurgical, Mining and Geological Engineers and Technicians Sisak (DMRGIT – Sisak). This was realized as early as in 1978. Prof. I. Mamuzić was elected president of the Society, and V. Ferketić, BS, secretary. This Society became a member of both

SRGMITH-a Ju, a prof. I. Mamuzić je u mandatnom razdoblju 1988-1990. bio predsjednik i SRGMITH-a a i dopredsjednik SRGMITH-a Ju.

Naše društvo DMRGIT Sisak bilo je vrlo aktivno. U organizaciji SITH-a Zagreb 1985. na simpoziju „Obrazovanje za vlastiti tehnološki razvoj“ I. Mamuzić je održao referat „Obrazovanje u metalurgiji“. Bilo je to razdoblje velikih priprema za izgradnju nove valjaonice bešavnih cijevi MK „Željezara Sisak“. Glede kritičkih osvrtu u tisku o ovom projektu, prof. I. Mamuzić je u časopisu Danas, 7 (1988) 332, 28-29 objavio članak „I kompjuteri i cijevi – treba nam moderna, rentabilna proizvodnja vođena kompjuterima“. 1988. organiziran je 12. međunarodni sajam rudarstva, a 1990. i 13. sajam. U organizaciji SRGMITH-a Jugoslavije na simpoziju „Unapređivanje i racionalizacija tehnoloških procesa u rudarstvu, geologiji i metalurgiji“ iznovice je I. Mamuzić održao referat „Obrazovanje u funkciji racionalizacije i unapređivanja tehnoloških procesa“ Beograd 1990. Povodom poteškoća kroz koje je prolazio MK „Željezara Sisak“, u ime DMRGIT-a Sisak, prof. I. Mamuzić je Poslovnom odboru Kombinata dao detaljniji pisani materijal „Razmišljanje: Perspektivni razvoj MK „Željezara Sisak“ u 1990. godini“ (Poslije nekoliko godina pokazala se opravdanost ovog dopisa, ali po tome ništa nije realizirano, a ranije poteškoće su se višestruko povećale).

Polazeći od svjetskih postignuća, statusa metalurgije, te demokratskih promjena u Hrvatskoj 1990/1991., prof. I. Mamuzić je iznovice intenzivno pokrenuo akciju za utemeljenje samostojnog metalurškog društva na razini Hrvatske. To je već realizirano 06.04.1992. na Osnivačkoj skupštini održanoj u prostorijama DIT-a Sisak. [12]

U Upravni odbor Hrvatskog metalurškog društva (HMD) izabrano je 9 članova (po abecednom redu):

1. Mr. Marijan Balenović – Holding „Željezara Sisak“ – Metaval
2. Petar Didović dipl. inž. – „Đuro Đaković“ holding Centar za istraživanje i razvoj d.d.
3. Mr. Vladimir Ferketić – Metalurški fakultet Sisak – tajnik
4. Antun Glavanović dipl. inž. – Holding „Željezara Sisak“ – Metaval
5. Drago Jakšić dipl. inž. – holding „Tvornica lakih metala Šibenik“ – dopredsjednik
6. Mr. Marijan Malina – Holding „Željezara Sisak“ – d.o.o.
7. Prof. dr. Ilija Mamuzić – Metalurški fakultet Sisak – predsjednik
8. Vladimir Plazzerianov dipl. inž. – Koksara – Bakar
9. Mr. Đuro Ščrbak – Unikonzum - Zagreb

Budući da je SRGMITH Hrvatske prestao s radom 1992., HMD se učlanio samo u HIS.

SRGMITH, and SRGMITH Ju, and prof. I. Mamuzić in his mandate 1988-1990 was president of SRGMITH and vice-president of SRGMITH Ju.

Our society DMRGIT Sisak was very active. At the symposium „Education for the Own Technological Development“ organized by SITH Zagreb in 1985, I. Mamuzić presented a report called „Education in Metallurgy“. It was a period of large preparations for the construction of a new welded pipes rolling mill of the Metallurgical Complex „Željezara Sisak“. Regarding critical reviews in Print about this project, prof. I. Mamuzić published an article in the magazine Danas, 7 (1988) 332, 28-29 „Both Computers and Pipes – We Need a Modern, Economical Production Managed by Computers“. In 1988 12th International Mining Fair was organized and in 1990 also 13th Fair. At the symposium „Improvement and Rationalization of Technological Processes in Mining, Geology and Metallurgy“ organized by SRGMITH of Yugoslavia, I. Mamuzić presented a report again „Education in the Function of Rationalization and Improvement of Technological Processes“ Belgrade 1990. Regarding difficulties experienced by MC “Željezara Sisak” on behalf of DMRGIT Sisak, prof. I. Mamuzić presented to the Business Board of the Complex a detailed written material “Consideration: Perspective Development of MC “Željezara Sisak” in 1990” (After a few years, this letter proved to be justified, but nothing was realized thereby, and former difficulties have multifold increased).

Starting from world achievements, status of metallurgy, and democratic changes in Croatia in 1990/1991, prof. I. Mamuzić strongly initiated again the foundation of independent metallurgical society at the level of Croatia. This was realized as early as on 06 April 1992 at the Foundation Assembly held in the premises of DIT Sisak. [12]

9 members (alphabetically) were elected to form the Management Board of Croatian Metallurgical Society (CMS):

1. Marijan Balenović MS – Holding „Željezara Sisak“ – Metaval
2. Petar Didović BS – „Đuro Đaković“ holding Research and Development Centre ltd.
3. Vladimir Ferketić MS – Metallurgical Faculty Sisak – secretary
4. Antun Glavanović BS – Holding „Željezara Sisak“ – Metaval
5. Drago Jakšić BS – holding „Light Metals Factory Šibenik“ – vice-president
6. Marijan Malina MS – Holding „Željezara Sisak“ – ltd.
7. Ilija Mamuzić PhD – Metallurgical Faculty Sisak – president
8. Vladimir Plazzerianov BS – Coke Plant – Bakar
9. Đuro Ščrbak MS – Unikonzum - Zagreb

Since SRGMITH of Croatia ceased to be active in 1992, CMS became a member of HIS only.

Mada su to bila teška ratna vremena, predsjednik I. Mamuzić je pokrenuo akciju za izradu vlastitog uredskog prostora. Na temelju dogovora s Udrugom hrvatskih rudarskih inženjera s kojima se dijelio uredski prostor, došlo je samofinanciranjem do dogradnje sobe br. 7 u HIS-u, Berislavićeva 6, Zagreb. Na taj način HMD ima vlastiti uredski prostor.

CILJEVI I ZADACI DRUŠTVA

Ciljevi Društva su promicanje stručne i znanstvene djelatnosti u metalurškoj struci, razvijanje metalurgije, organiziranje društvene djelatnosti radi širenja metalurškog znanja, popularizacije metalurgije, te stručno i znanstveno usavršavanje članova Društva i ostvarivanje njihovih zajedničkih interesa. [9]

U ostvarivanju ciljeva zbog kojih je osnovano, Društvo među ostalim obavlja ove aktivnosti:

- okuplja i organizira diplomirane inženjere i tehničare metalurške struke i drugi stručni kadar i znanstvenike koji se teoretski i praktično bave problemima metalurgije,
- sudjeluje u stvaranju javnog znanstvenog i stručnog mišljenja i stavova o svim bitnim tehničkim, ekonomskim, proizvodnim i drugim problemima metalurgije,
- neprekidno brine o stručnom usavršavanju svojih članova potičući i podržavajući inicijative članova u proizvodnom i znanstveno-istraživačkom radu u području metalurgije,
- organizira i održava suradnju sa svim organizacijama i asocijacijama koje se bave pitanjima od interesa za metalurgiju i imaju zajednički interese i ciljeve s djelatnošću Društva,
- surađuje s odgovarajućim međunarodnim organizacijama inženjera i tehničara izvan Republike Hrvatske,
- organizira stručna predavanja, seminare, savjetovanja, kongrese, simpozije, okrugle stolove i ostale stručne i znanstvene skupove,
- potiče izdavanje i izdaje znanstveno-stručne publikacije,
- njeguje i razvija etiku inženjersko-tehničkog poziva u skladu sa specifičnom prirodom posla.

Promjene u političkom i gospodarskom sustavu u Republici Hrvatskoj nameću potrebu proširivanja zadataka i prilagođavanja oblika i načina djelovanja Hrvatskog metalurškog društva stvarnim potrebama metalurgije kao i Hrvatske u cjelini. Traže se aktivne, konkretne i praktične orijentacije u svakodnevnoj djelatnosti. Prvenstveni su zadaci:

1. Učlanjivanje Hrvatskog metalurškog društva u svjetske a posebice europske stručne organizacije i društva metalurga. Sudjelovati ak-

Although those were the hard war times, president I. Mamuzić initiated the arrangement of its own office premises. Based on agreement with the Association of Croatian Mining Engineers that it shared office premises with, the room No. 7 was annexed in HIS, Berislavićeva 6, Zagreb, by self-finance. Thus, CMS obtained its own office premises.

GOALS AND TASKS OF THE SOCIETY

The goals of the Society are to encourage professional and scientific activity in the metallurgic professions, develop metallurgy, organize activities for spreading metallurgic knowledge, popularize metallurgy as well as promote the professional and scientific continued education of Society members and realize their common interests. [9]

In realizing the goals for which the Society was founded, the following are some of its activities:

- consolidating and organizing graduate engineers and technicians in the field of metallurgy as well as other professional personnel and scientists who are theoretically or practically engaged in the problems of metallurgy,
- participating in the establishment of public scientific and professional positions and opinions regarding essential technical, economic, production and other problems of metallurgy,
- devoting constant attention to the continuing education of its members, stimulating and recognizing the initiatives of members in production as well as scientific research work in the field of metallurgy,
- organizing and maintaining collaboration with all the organizations and associations engaged in questions of interest to metallurgy whose interests and goals are those of the Society,
- cooperating with international organizations engaged theoretically and practically in the problems of metallurgy, as well as with national organizations of engineers and technicians outside the Republic of Croatia,
- organizing professional lectures, seminars, symposiums, round table discussions and other professional and scientific meetings,
- stimulating the publication of scientific-professional works,
- fostering and developing the ethics of the engineering-technical calling in accord with the specific nature of the work.

Changes in the political and economic system in the Republic of Croatia have necessitated the expansion of our responsibilities and the adaptation of the activities of the Croatian Metallurgical Society to the actual needs of metallurgy as well as Croatia as a whole. Active, concrete and practical orientation is required in daily activities. The primary tasks are as follows:

1. The Croatian Metallurgical Society must become a member of world professional organizations and metallurgic societies, especially in Europe. It must

- tivno u djelatnosti svih međunarodnih organizacije.
2. Aktivno i dugoročno angažiranje na rješavanju najaktualnijih pitanja razvoja metalurgije u Hrvatskoj. Tu se uklapa i stalna djelatnost na stabilizaciji, korekciji, kvalitetnoj proizvodnji, angažiranje u usavršavanju sustava obrazovanja itd.
 3. Okupljanja i poticanje inženjera i tehničara metalurgije na razvijanje stvaralačke inicijative, javno iznošenje znanstvenih i stručnih mišljenja o svim bitnim pitanjima razvoja i u proizvodnji metalurgije Hrvatske. Djelovati na stalnom unapređivanju organizacije djelovanja na znanstvenim osnovama, novim znanjima.
 4. Stalno djelovati na afirmaciji tehničkih unapređenja i novatorstva i pri tome usko surađivati sa srodnim društvima.
 5. Organizirati i održavati simpozije (savjetovanja), stručne sastanke te upoznati našu i međunarodnu javnost s postignutim rezultatima djelovanja naših stručnjaka i organizacija.
 6. Obrazovanje i specijalizaciju kadrova potrebno je osuvremeniti i prilagoditi ih zahtjevima tehnološki-informatičke revolucije. S tim u svezi organizirati stručna usavršavanja inženjera i tehničara metalurgije u suradnji i s međunarodnim institucijama. Osobito je važno poboljšati interdisciplinarna znanja te surađivati u tom sustavu sa stručnjacima u tuzemstvu i inozemstvu.
 7. Posebnu pažnju pokloniti istraživačkoj djelatnosti kao i obavješćivanju javnosti o djelatnosti Društva. Intenzivno pomoći suizdavanju tiskanja časopisa *Metalurgija*, a po mogućnosti sudjelovati u tiskanju priručnika, zbornika, knjiga, itd. iz područja metalurgije.

Glavne aktivnosti Hrvatskog metalurškog društva:

- tiskanje časopisa *Metalurgija*,
- međunarodni simpoziji iz materijala i metalurgije,
- suradnja u inozemstvu i tuzemstvu.

TISKANJE ČASOPISA METALURGIJA

Prošlo je četrdeset šest godina od osnutka i početka objavljivanja časopisa *Metalurgija*. To je značajno za sve znanstvenike i stručnjake metalurških i srodnih struka iz domovine i tuđine, kao i za sve autore i čitatelje koji su svoje rezultate i ideje provjeravali ili ih našli na stranicama ovog časopisa. [9, 13]

Dokaz da je časopis *Metalurgija* opravdao svoje postojanje jest tijekom 46 godina neprekidnog

actively participate in the activities of all international organizations.

2. Active long-term engagement is necessary for solving the most pressing questions concerning the development of metallurgy in Croatia. This includes continuing activity on stabilization, correction, quality production and especially the coordination of science and manufacturing, improvements in the educational system etc.
3. The consolidation and stimulation of metallurgic engineers and technicians are vital to the development of creative initiative as are the publication of scientific and professional opinions on all important questions of development and metallurgic production in Croatia. Constant activity is required to advance the organization based on scientific foundations and new knowledge.
4. There is also constant activity on the affirmation of technical advancements and innovations as well as close collaboration with related societies.
5. Professional symposiums are held and organized. The Croatian and international public is informed of the results achieved by our professionals and organizations.
6. The education and specialized training of personnel requires modernization and adaptation to the revolution in technology and informatics. It is necessary to organize the professional training of metallurgic engineers and technicians, including cooperation with international institutions. It is especially important to improve interdisciplinary knowledge and cooperate with Croatian and foreign experts.
7. Particular attention should be devoted to research activity as well as the publication of the activities of the Society. There should be intensive assistance such as the co-publication of the journal *Metalurgija*, and if possible participation in the printing of manuals, proceedings, books etc. from the field of metallurgy.

Principal activities of Croatian Metallurgical Society:

- publishing of the journal *Metalurgija*,
- international symposiums by the materials and the metallurgy,
- cooperation abroad and in Croatia.

PUBLISHING OF THE JOURNAL METALURGIJA

Forty six years have passed since the foundation and the first publishing of the journal *Metalurgija*. This is important for all scientists and experts in the field of metallurgy and other relevant branches of science from Croatia and abroad, as well as for all authors and readers whose investigation results and ideas have been examined and found on the pages of this journal. [9, 13]

The proof that the journal *Metalurgija* has truly justified its existence is continuous publication of 150 volumes or

izlaženja u 150 svezaka ili 178 brojeva, objavljenih 1090 znanstvenih (i stručnih) članaka te 121 prilog.

U posljednjim godinama udio autora iz inozemstva je iznad 80%. Danas u *Metalurgiji* objavljuju autori iz preko dvadeset država, što znači da je *Metalurgija* zauzela važno mjesto u srednjoj i istočnoj Europi (a i šire), gdje je među vodećim časopisima takvog usmjerenja. Interesantno je da su znanstvenici iz svih novih država utemeljenih poslije raspada Jugoslavije prepoznali časopis *Metalurgija* kao vodeći časopis s ovih područja, a koji je priznat i u njihovim državama za izbor u odgovarajuća zvanja. Posebice brojnošću i kakvoćom prednjače znanstvenici iz Slovenije.

Tiska se kvartalno, izuzetno redovito (do 2 mjeseca prije vremena važnosti), što je rijetkost sa časopisima u Hrvatskoj, a i u svijetu. Tiska se na hrvatskom i engleskom jeziku, ali je preko 98% članaka na engleskom.

Ako se analizira po kategorijama znanstvenih radova (uključujući prethodna priopćenja, pregledne radove) i stručnih članaka, udjel znanstvenih članaka danas se povećao na preko 90%. To znači da je časopis u potpunosti znanstveni časopis.

Članci objavljeni u časopisu *Metalurgija* referiraju se sada u preko 30 međunarodnih sekundarnih publikacija i baza podataka.

Dokaz postignuća časopisa *Metalurgija* jest uključenje 1995. u publikacije ISI. Tri tehnička časopisa u Hrvatskoj i *Metalurgija* citiraju se u ISI izdanjima, što je izuzetan uspjeh ne samo za časopis nego i za prestiž Hrvatske u svijetu.

„Biti zastupljen u tekućim bazama podataka stvar je prestiža. Hrvatska, kao mala znanstvena zajednica i zemlja u tranziciji, sa svim atributima koji prate ove činjenice, može biti samo s određenim brojem časopisa zastupljena u publikacijama ISI.“ (Citat iz članka: M. Jokić, Časopis kao sredstvo komunikacije, Sveučilišni vjesnik 44 (1998) 2-3, 63-72)

I u Hrvatskoj je časopis po vrsnoći izjednačen sa svjetskim. Dobar prijam u znanstvenim krugovima svjedoči i razmjena časopisa (preko 30 iz inozemstva i tuzemstva), te dostava časopisa u najprestižnije knjižare u svijetu. Prima se godišnje prosječno do 150 članaka, od kojih se objavi 1/3. Međunarodni Urednički odbor ima 14 članova (5 iz Hrvatske i 9 iz inozemstva) – svi znanstveni savjetnici. Recenzenti su jednako priznati domaći (u 2007-9) i inozemni (u 2007-59) znanstvenici. Naklada je 600 primjeraka.

Očevidno, Hrvatska preko svog nacionalnog časopisa *Metalurgija* priznatim i prestižnim i u svijetu, ima djelotvorni i suvremeni medij za bogatu međunarodnu suradnju i predstavljanje hrvatske znanosti na ovom polju istraživanja. Časopis, ne samo raznolikošću i bogatstvom tema, nego i brojnošću i profi-

178 issues, 1090 scientific (and technical) papers and 121 contributions during the last 46 years.

In recent years the participation of the authors from abroad is above 80%. Today, authors from over twenty countries publish in *Metalurgija*, which means that *Metalurgija* occupies an important place in middle and east Europe (and beyond), where it belongs to leading journals of this branch. It is interesting that scientists from all the new states established after the break-up of Yugoslavia have recognized the magazine *Metalurgija* as the leading magazine from this territory, which is recognized in their countries as well for a choice of adequate professions. The scientists from Slovenia in particular take the lead in both the number and quality.

It is published quarterly, extraordinarily regularly (up to two months before deadline), which is very rarely when the journals in Croatia are in question, also in the world. It is published in Croatian and English, but more than 98% articles are in English.

If analysed according to categorization of scientific papers (including preliminary notes, reviewed papers) and professional articles, participation of scientific articles increased today over 90%. It means that the journal is a completely scientific journal.

The articles published in *Metalurgija* are referred now to in over 30 international secondary publications and databases.

The proof of journal's achievement is the fact that it is included in the ISI publications in 1995. Three technical journals from Croatia and *Metalurgija* are cited in ISI secondary journals, what is an extraordinary success not only for the journal, but also for a prestige of Croatia in the world.

“To be represented in existing data base is a thing of a reputation. Croatia, as a small scientific community and a transition country with all the attributes that accompany these facts may be only presented in the ISI publications with a limited number of journals.” (Quotation from the article of M. Jokić: “Journal as a means of communication”, University Herald 44 (1998) 2-3, 63-72)

In Croatia the journal is also levelled with world journals regarding the quality. Good acceptance in scientific circles is affirmed through the exchange of the journals (over 30 in Croatia and abroad) and delivering of the journal into the most prestigious world libraries. Up to 150 articles are received per year on the average, 1/3 of which is published. The International Editorial Board has 14 members (5 from Croatia and 9 from abroad) – all of them scientific advisors. Reviewers are equally recognized Croatian (9-2007) and foreign (59-2007) scientists. This journal's edition is of 600 copies.

It is obvious that Croatia in its national journal *Metalurgija*, which is world-recognized and prestigious, has an effective and up-to-date media for rich international collaboration and presentation of Croatian science in this field of researching. The journal, not only by its diversity and richness of topics, but as well by a great number of au-

lom autora iz preko dvadesetak država opravdava svoju svrshodnost.

Značajan doprinos stalnom i uspješnom izlaženju časopisa *Metalurgija* dali su članovi Uredničkog odbora, čiji su isključivo dragovoljački rad i zalaganje omogućili da se svladaju brojni tehnički, organizacijski i financijski problemi u proteklom razdoblju.

Na kraju priopćavamo zajedničku želju da i u budućem razdoblju časopis *Metalurgija* ostvaruje i veće i bolje rezultate nego do sada. Izražavamo zahvalnost autorima i svim članovima Uredničkog odbora, posebice Ministarstvu znanosti, obrazovanja i športa Republike Hrvatske uz čiju se skromnu novčanu potporu časopis tiska. Zahvala i mnogim drugima za sve što su pomogli i učinili za uspješnost izlaženja časopisa *Metalurgija*, tijekom 47 godina.

Svaki broj časopisa *Metalurgije* (od 2002.) cjelovit je uz pisani oblik i na:

<http://public.carnet.hr/metalurg>

<http://hrcak.srce.hr>

<http://www.doaj.org>

Također i na CD-romu.

MEĐUNARODNI SIMPOZIJI IZ MATERIJALA I METALURGIJE [14-49]

Hrvatsko metalurško društvo održalo je prvi simpozij „Materijali i metalurgija“ u Zagrebu, 16.-18. veljače 1994. Održano je 88 referata, a sudjelovalo je više od 250 znanstvenika i eksperata iz različitih europskih metalurških institucija.

Hrvatsko metalurško društvo održalo je drugi simpozij „Stanje i razvitak plastične prerade metala“ u Splitu, 20.-22. lipnja 1996.

150 referata (105 od sudionika iz inozemstva i 45 iz Hrvatske) izloženo je na simpoziju, a nazočno je bilo preko 300 sudionika iz dvanaest zemalja.

Na trećem Međunarodnom simpoziju „Stanje i razvitak plastične prerade metala“ (Šibenik, 25.-27. lipnja 1998.) sudjelovalo je 300 sudionika iz 15 država. Izložena su 192 referata. Djelatnost simpozija se odvijala na plenarnom zasjedanju (plenarno predavanje i okrugli stol „Metalurgija danas, sutra – stanje u Hrvatskoj“) i 4 poster sekcije:

- Sekcija A – Plastična prerada,
- Sekcija B – Fizička metalurgija i materijali,
- Sekcija C – Procesna metalurgija,
- Sekcija D – Metalurška toplotehnika i zaštita okoliša.

Četvrti simpozij „Materijali i metalurgija“ održan je u Opatiji 25.-29. lipnja 2000. Prijavljena su 333 referata iz 29 država od 700 autora i suautora.

380 sudionika iz 19 država je bilo nazočno na simpoziju. Djelatnost simpozija se jednako odvijala kroz plenarno zasjedanje i tri poster sekcije:

thors and their scientific profiles from more than 20 countries has justified its serving the purpose.

The members of its Editorial Board provided an important contribution to the continuous and successful publication of *Metalurgija*. Although they work on voluntary basis, their efforts and endeavours have made it possible to overcome numerous technical, organizational and financial difficulties in the time past.

In conclusion, we would like to express the wish of us all: may this journal keep achieving even bigger and better results in the future. We also wish to thank to authors, all members of the Editorial Board and especially the Ministry of Science, Education and Sports of the Republic of Croatia for their modest financial support to the journal. We also thank many other people for their assistance and for they have done for the successful publication of the *Metalurgija* in the course of 47 years.

Each number of journal *Metalurgija* as a whole can be found in a written form on:

<http://public.carnet.hr/metalurg>

<http://hrcak.srce.hr>

<http://www.doaj.org>

Also on CD-ROM.

INTERNATIONAL SYMPOSIUMS BY THE MATERIALS AND THE METALLURGY [14-49]

Croatian Metallurgical Society held the first symposium “Materials and Metallurgy” in Zagreb, February 16-18, 1994. Over 88 lectures, a half of which was attended by more than 250 scientists and experts from several European metallurgical associations.

Croatian Metallurgical Society held the second symposium “State and Development of Plastic Metal Processing” in the town of Split on June 22-22, 1996.

150 lectures (105 by participants from abroad and 45 by Croatian participants) were read at the symposium, and more than 300 people from twelve countries were attending.

At the 3rd International Symposium “State and Development of Plastic Metal Processing” (Šibenik, June 25-27, 1998) 300 participants from 15 countries were present. There were read 192 reports. Symposium activities proceeded through plenary sections (plenary lectures and round table sessions “Metallurgy Today, Tomorrow – State in Croatia”) and four sections (posters):

- Section A – Plastic Processing,
- Section B – Physical Metallurgy and Materials,
- Section C – Process Metallurgy,
- Section D – Metallurgical Thermotechniques and Protection of Environment.

Croatian Metallurgical Society held the 4th symposium “Materials and Metallurgy” in Opatija, June 25-29, 2000. There were 333 reports from 29 countries, 700 authors and co-authors registered.

380 participants from 19 countries were present at the symposium. Symposium activity took place through plenary lectures and three sections (poster):

- Sekcija A – Materijali,
- Sekcija B – Procesna metalurgija,
- Sekcija C – Plastična prerada.

Peti međunarodni simpozij Hrvatskog metalurškog društva „Materijali i metalurgija“ održan je u Šibeniku, 23.-27. lipnja 2002. Prijavljeno je 375 referata iz 30-ak država, od 700 autora i suautora. Na simpoziju je bilo nazočno 300 sudionika iz 20 država. Djelatnost simpozija se odvijala kroz plenarno zasjedanje i četiri poster sekcije:

- Plenarna predavanja,
- Sekcija A – Materijali,
- Sekcija B – Procesna metalurgija,
- Sekcija C – Plastična prerada,
- Sekcija D – Metalurgija i srodna područja.

Za vrijeme petog simpozija održan je također:

- susret međunarodnog uredničkog odbora časopisa *Metalurgija* s promocijom – „Bibliografija 1962.-2001.“ (25.06.2002.),
- godišnja skupština Hrvatskog metalurškog društva (24.06.2002.).

Više od 100 sudionika sudjelovalo je na okruglom stolu o postignućima, zaključcima i zatvaranju petog međunarodnog simpozija „Materijali i metalurgija“.

6. međunarodni simpozij „Materijali i metalurgija“ Hrvatsko metalurško društvo održalo je jednako u Šibeniku, 20.-24. lipnja 2006. U organizaciji 6. simpozija sudjelovalo je 35 država. Registrirano je 368 referata iz 28 država, 660 autora i suautora. 250 sudionika iz 23 države je bilo nazočno na simpoziju. Djelatnost simpozija odvijala se kroz plenarno zasjedanje i četiri poster sekcije (jednake kao i za 5. simpozij).

Za vrijeme 6. simpozija održan je i susret Međunarodnog uredničkog odbora časopisa *Metalurgija*.

Preko 100 sudionika nazočilo je okruglom stolu o postignućima u metalurgiji i zatvaranju simpozija.

Hrvatsko metalurško društvo održalo je 7. simpozij „Materijali i metalurgija“ opet u Šibeniku, 18.-22. lipnja 2006. U organizaciji 7. simpozija sudjelovale su 34 države. Registrirano je 475 referata iz 25 država, 799 autora i suautora. 260 sudionika iz 22 države bilo je nazočno. Djelatnost se opet odvijala kroz plenarno zasjedanje i četiri poster sekcije (jednako kao i za 6. simpozij).

Za vrijeme 7. simpozija održan je i sastanak Međunarodnog uredničkog odbora časopisa *Metalurgija*, gdje je u razdoblju 2006-2010. za glavnog i odgovornog urednika reizabran akad. I. Mamuzić.

Više od 150 sudionika nazočilo je u radu okruglog stola glede postignuća u metalurgiji i zatvaranju 7. simpozija.

- Section A – Materials,
- Section B – Process Metallurgy,
- Section C – Plastic Processing.

The 5th International Symposium of Croatian Metallurgical Society “Materials and Metallurgy” was held in Šibenik, June 23-27, 2002. There were 375 reports from 30 countries, 700 authors and co-authors registered for this symposium. 300 participants from 20 countries were present at the symposium. Symposium activity took place through plenary lectures and four sections (posters):

- Plenary lectures,
- Section A – Materials,
- Section B – Process Metallurgy,
- Section C – Plastic Processing
- Section D – Metallurgy and Related Topics.

At the time of the 5th symposium there were also held:

- meeting of International Editorial Board of the journal *Metalurgija* with promotion of Bibliography 1962-2001 (June 25, 2002),
- Assembly of Croatian Metallurgical Society (June 24, 2002).

More than 100 participants were included in a round table session on the achievements, conclusions and closing of the 5th International Symposium “Materials and Metallurgy”.

The 6th International Symposium of Croatian Metallurgical Society “Materials and Metallurgy” was held also in Šibenik, June 20-24, 2006. 35 countries participated in the 6th symposium. There were 368 reports from 28 countries, 660 authors and co-authors registered. 250 participants from 23 countries were present at the symposium. Symposium activity took place through plenary lectures and four poster sections (all the same as for the 5th symposium).

At the time of the 6th symposium there was also held the meeting of International Editorial Board of the journal *Metalurgija*.

More than 100 participants were included in a round table session on the achievements in metallurgy and closing of the 6th symposium.

Croatian Metallurgical Society held the 7th symposium “Materials and Metallurgy” again in Šibenik, June 18-22, 2006. 34 countries participated in the organisation. There were 475 reports from 25 countries, 799 authors and co-authors registered. 260 participants from 22 countries were present at the symposium. Symposium activity took place again through plenary lectures and four poster sections (as for the 6th symposium).

At the time of the 7th symposium there was also held the meeting of International Editorial Board of the journal *Metalurgija*, and Acad. I. Mamuzić was re-elected Editor-in-Chief for the period 2006-2010.

More than 150 participants were included in a round table session on the achievements in metallurgy and closing of the 7th symposium.

Na temelju suglasnosti sa sastanka svjetskih metalurških društava, Düsseldorf, studeni 2005., te zaključaka okruglog stola, sljedeći 8. međunarodni simpozij „Materijali i metalurgija“ održao se u Šibeniku, 22.-26. lipnja 2008. U organizaciji kao i aktivnom sudjelovanju na 8. simpoziju zastupljene su 44 države. Registrirano je čak 615 referata (Plenarna predavanja – 10; Materijali – Sekcija „A“ – 291; Procesna metalurgija – Sekcija „B“ – 133; Plastična prerada – Sekcija „C“ – 71; Metalurgija i srodna područja – Sekcija „D“ – 110). Djelatnost se iznovice odvijala kroz plenarno zasjedanje i četiri poster sekcije. Za vrijeme 8. simpozija održan je i sastanak Međunarodnog uredničkog odbora časopisa *Metalurgija*, sastanak Upravnog odbora i Godišnja skupština Hrvatskog metalurškog društva.

Na temelju dogovora sa sastanka svjetskih metalurških udruga, Düsseldorf, studeni 2007., sljedeći 9. međunarodni simpozij „Materijali i metalurgija“ održat će se 20.-24.06.2010.

Ukupno se za simpozije Hrvatskog metalurškog društva može zaključiti:

Prihvatanje svih 9 simpozija od međunarodnih i domaćih institucija ukazuje na to da su simpoziji Hrvatskog metalurškog društva tradicionalno mjesto okupljanja svjetskih i domaćih eksperata i znanstvenika različitih profila: metalurga, fizičara, kemičara, strojara itd.

S toliko prijavljenih referata kao na simpozijima Hrvatskog metalurškog društva (preko 600) mogu se pohvaliti rijetki organizatori simpozija, ne samo u Hrvatskoj, nego i u svijetu, posebice za tehničke struke.

SURADNJA U TUZEMSTVU I INOZEMSTVU

Hrvatsko metalurško društvo ima izuzetno plodonosnu suradnju s nizom srodnih udruga, tvrtkama, stručnim, znanstvenim i sveučilišnim institucijama u tuzemstvu i inozemstvu.

Inozemna suradnja

Suradnja u inozemstvu odnosi se na pravne subjekte u više od 50 država, što je zaista rijetkost za hrvatske udruge. Suradnja se odvija na tri razine:

a) svjetska razina

U organizaciji udruga Stahlinstitut VDEh i European Steel Institute Confederation (ESIC) svake godine početkom mjeseca studenog održava se u Düsseldorfu – Njemačka susret svih svjetskih udruga za čelik, te metalurških društava pod službenim nazivom „International Meeting of Steel and Metallurgical Societies“. Nazočni su zastupnici

Based on the agreement from the meeting of World Metallurgical Societies, Düsseldorf, November 2005, and the conclusions of the round table, the next 8th International Symposium “Materials and Metallurgy” was held in Šibenik, June 22-26, 2008. 44 countries are represented both in organization of and participation in the 8th symposium. As many as 615 reports are registered (plenary lectures – 10; Materials – Section “A” – 291; Process Metallurgy – Section “B” – 133; Plastic Processing – Section “C” – 71; Metallurgy and Related Topics – Section “D” – 110). The activity took place again through plenary lectures and four poster sections. The International Editorial Board meeting of the magazine *Metalurgija*, Management Board meeting and the Annual Assembly of Croatian Metallurgical Society were held during the 8th symposium.

Based on the agreement from the meeting of World Metallurgical Societies, Düsseldorf, November 2007, the next 9th International Symposium “Materials and Metallurgy” will be held in 2010, June 20-24.

In total, the following conclusion can be made regarding the symposiums of Croatian Metallurgical Society:

The reception of all 9 symposiums of Croatian Metallurgical Society by international and Croatian institutions has shown that the symposiums have become a traditional place for the gathering of the world’s and Croatian experts and scientists of various profiles: metallurgists, physicists, chemists, mechanical engineers etc.

Only a few symposium organisers, not only in Croatia, but in the world as well, particularly for technical professions, can take pride in that many reports registered (over 600) as at the symposiums of Croatian Metallurgical Society.

COOPERATION IN CROATIA AND ABROAD

Croatian Metallurgical Society has an extremely productive cooperation with a number of related associations, companies, professional, scientific and university institutions in Croatia and abroad.

Cooperation Abroad

Cooperation abroad refers to legal entities in over 50 countries, which is really rare among Croatian associations. The cooperation takes place on three levels:

a) World level

The meeting of all of the world associations for steel, and metallurgical societies officially called „International Meeting of Steel and Metallurgical Societies“ organized by associations of Stahlinstitut VDEh and European Steel Institute Confederation (ESIC) is being held every year by the beginning of November in Düsseldorf – Germany. It is attended by representatives of these associations from about

ovih udruga iz oko 50 država. Raspravlja se o rasporedu svjetskih, europskih i međunarodnih simpozija s područja djelatnosti ovih udruga, stanju metalurgije, posebice proizvodnje čelika u svijetu i pojedinim državama, perspektivama razvoja, a često i o obrazovanju stručnjaka za metalurgiju.

Od 1992. kada je HMD došao na razinu države, naši zastupnici su svake godine pozivani i većinom su bili nazočni na tim susretima. Ovaj svjetski skup je uvijek raspravljao, odobravao i primao završna izvješća svih naših do sada organiziranih 8 simpozija, a već je prihvaćen i 9. simpozij.

Svi sudionici su se pohvalno izražavali o organizaciji naših simpozija i podnesenim detaljnim izvješćima, uz posebno isticanje brojnosti referata na našim simpozijima (i preko 600!).

b) europska razina

Ova suradnja odnosi se uglavnom na pet ustanova:

- European Steel Institute Confederation – ESIC, u kojem je predsjednik HMD-a I. Mamuzić član Upravnog odbora, a sastanci se održavaju minimalno jedanput godišnje.
- European Steel Federation (ESF)
- International Iron and Steel Institute (IISI)

S ovim ustanovama suradnja je i u organizaciji simpozija HMD-a.

- Central European Metallurgical Co-operation (CEMCO)

Ovu instituciju tvore zastupnici udruga iz Austrije, Češke, Poljske, Slovačke, Mađarske, Slovenije i Hrvatske. I u ovoj instituciji zastupnik HMD-a prof. I. Mamuzić član je najužeg tijela glede odlučivanja.

- Europska unija

To se odnosi na projekt Europ Aid/120977/C/SV Multi, pod nazivom „Steel Restructuring Technical Assistance for Bulgaria, Romania, Croatia and Turkey“.

Ustanova WYG-International (Engleska) nositelj je cijelog projekta, a HMD i I. Mamuzić kao glavni istraživač za Hrvatsku. Nažalost ovaj angažman uslijedio je tek krajem 2006. kad se samo može utvrditi posrnulost hrvatske metalurgije, a i poziv je došao iz inozemstva, uz našu ograničenu mogućnost utjecaja i odlučivanja.

c) nacionalna (bilateralna) razina

Ova suradnja odnosi se na jednu ili čak više raznih sadržaja djelatnosti ustanova iz 50 država. Navode se samo važnije koje su dosad sudjelovale, a i sada su sudjelovale u organizaciji 8. međunarodnog simpozija „Materijali i metalurgija“ Šibenik, 22.-26.06.2008. (Ovaj simpozij je posvećen upravo obilježavanju 55. obljetnice HMD-a.) Neke od navedenih ustanova su i izravne članice HMD-a, te odgovorno sudjeluju u radu HMD-a.

50 countries. It is discussed about the schedule of world, European and international symposiums in the activity area of these associations, about the status of metallurgy, particularly steel production in the world and individual countries, about development perspectives, and often also about education of experts for metallurgy.

Since 1992, when CMS came to the level of the state, Croatian representatives were invited every year and mostly attended these meetings. This world meeting has always discussed about, approved of and received final reports from all of our 8 symposiums organized so far, and the 9th symposium has been already accepted.

All participants expressed their appreciation regarding organization of Croatian symposiums and detailed reports submitted, especially pointing out the large number of reports at Croatian symposiums (even over 600!).

b) European level

This cooperation refers mostly to five institutions:

- European Steel Institute Confederation – ESIC, where the CMS president I. Mamuzić is a member of the Management Board, and meetings are being held at least once a year.
- European Steel Federation (ESF)
- International Iron and Steel Institute (IISI)

These institutions participate also in the organization of CMS symposiums.

- Central European Metallurgical Co-operation (CEMCO)

This institution is made by representatives of associations from Austria, Czech Republic, Poland, Slovakia, Hungary, Slovenia and Croatia. In this institution too, CMS representative prof. I. Mamuzić is a member of the most immediate body considering decision making.

- European Union

This refers to the project Europ Aid/120977/C/SV Multi, called „Steel Restructuring Technical Assistance for Bulgaria, Romania, Croatia and Turkey“.

The institution of WYG-International (England) is the owner of the entire project, and CMS and I. Mamuzić as the major researcher for Croatia. Unfortunately, this engagement happened to be as late as by the end of 2006 when it was only possible to establish that Croatian metallurgy has stumbled, and the invitation came from abroad, with our limited possibility to exert influence and make decisions.

c) National (bilateral) level

This cooperation refers to one or more various activities of institutions from 50 states. Let us mention only the major ones that have participated so far and participated now in the organization of the 8th International symposium „Materials and Metallurgy“ Šibenik, 22-26 June 2008. (This symposium is dedicated just to the celebration of 55th anniversary of CMS.) Some of these institutions are also direct members of CMS, and they participate in the work of CMS with responsibility.

(Daje se samo engleski naziv ustanova)

(Only English names of institutions are given)

- Academy of Engineering Science of Ukraine
- University of Mining and Metallurgy, Faculty of Foundry Engineering, Krakow
- University of Ljubljana, Faculty of Natural Science and Engineering
- Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences, Moscow, Russia
- University of Zenica Faculty for Metallurgy and Materials Science, Zenica
- National Metallurgical Academy of Ukraine
- Technical University of Košice, Faculty of Mechanical Engineering
- Technical University of Košice, Berg Faculty
- Czestochowa University of Technology, Poland
- VŠB Technical University of Ostrava
- Institute of Metals and Technology, Ljubaljana
- Institute of Materials Research of the Slovak Academy of Sciences in Košice
- Moscow State Steel and Alloys Institute
- Physic-Technical Institute National Academy of Science Minsk
- Politehnica University of Bucharest
- Institute of Metallurgy „Kemal Kapetanović“, Zenica
- Pisarenko Institute of Problems of Strength NASU, Kiev
- Dnepropetrovsk National University, Dnepropetrovsk
- Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology, Bratislava
- Kaunas University of Technology, Kaunas, Lithuania
- BERG Akademie Freiberg
- Stahlinstitut VDEh, Germany
- ATS – Association Technique de la Sidérurgie Française
- CENIM – Centro National de Investigaciones Metalurgicas Spain
- ChSM – Chinese Society for Metals China
- CRM – Centre de Recherches Métallurgiques Belgium
- ASMET – Austrian Society for Metallurgy and Materials
- America Iron and Steel Institute, USA
- ISIJ – Iron and Steel Institute of Japan
- JERN – Jernkontoret, Sweden
- SRM – Romanian Society for Metallurgy
- SITPH – Association of Polish Metallurgical Engineers
- HOOGOVS, The Netherlands
- SHS – Slovak Metallurgical Society, and Department of SHS at Faculty of Metallurgy – Košice
- Sociedade Portuguesa de Materiais
- MVAE – Association of Hungarian Steel Industry
- Steel Federation of the Czech Republic
- Union of Bulgarian Metallurgists
- IBS – Instituto Brasileiro de Siderurgia
- AIM – Associazione Italiana di Metallurgia
- Japan Institute of Metals
- Egyptian Association for Industrial Development
- Institute Argentino de Siderurgia
- Associacao Brasileira de Metalurgia e Materiais
- ILAFA – Instituto Latinoamericano del fierroy el Acero, Chile
- Société Française de Métallurgie et de Matériaux
- Institute of Materials, Minerals and Mining, England
- P.T. Krakatau Steel, Indonesia
- KOSA – Korea Iron and Steel Association
- Amsteel Mills Sdn Bhd, Malaysia
- Philippine Iron & Steel Institute
- NatSteel Asia (S) Pte Ltd, Singapur
- South African Institute of Mining and Metallurgy
- Iron and Steel Institute of Thailand
- Vietnam Steel Corporation

S mnogim institucijama sačinjeni su i Dogovori o suradnji. Kao ilustracija daje se djelić iz teksta „DRAFT AGREEMENT (minutes of meeting)“ između University of Massachusetts, SAD i HMD-a (samo na engleskom jeziku – izvorno) – citat:

„On April 24th 2000, Professor Mamuzic, President of the Metallurgical Society of Croatia and Dr. Sherif Elwakil, Dean of the College of Engineering at the University of Massachusetts Dartmouth met to discuss possible collaboration in different areas and agreed that there is a good potential in areas of Materials Science and Engineering, Environmental Protection, as well as advanced modern science and engineering.“ Etc.

Agreements on Cooperation are made with many institutions. As an illustration, please refer to a part of the text „DRAFT AGREEMENT (minutes of meeting)“ between University of Massachusetts, USA and CMS (original) – quote:

„On April 24th 2000, Professor Mamuzic, President of the Metallurgical Society of Croatia and Dr. Sherif Elwakil, Dean of the College of Engineering at the University of Massachusetts Dartmouth met to discuss possible collaboration in different areas and agreed that there is a good potential in areas of Materials Science and Engineering, Environmental Protection, as well as advanced modern science and engineering.“ Etc.

TUZEMNA SURADNJA

I ova suradnja se odvija u više putokaza:

- a) Kao članica Hrvatskog inženjerskog saveza (HIS) HMD je pozivan na Godišnje skupštine HIS-a, a sudjeluje na poziv i u povremenim akcijama HIS-a. Tako je povodom 120. obljetnice HIS-a 1998. izdao knjigu „Uspostava Hrvatskog inženjerskog saveza“ u kojoj je I. Mamuzić napisao poglavlje o HMD-u (str. 225-243). Iznovice povodom 125. obljetnice HIS-a 2003. HIS je izdao SPOMEN-KNJIGU (HIS 1975.-2003.) I. Mamuzić je napisao poglavlje o prošlosti, sadašnjosti i budućnosti hrvatske metalurgije (str. 293-308).
- b) Navodi se da je tuzemna suradnja s više srodnih udruga tehničke struke bila u razmjenama časopisa, ili mišljenja, zajedničkim strukovnim akcijama itd.:
 - Hrvatsko društvo kemijskih inženjera i tehnologa
 - Hrvatsko društvo za goriva i maziva
 - Hrvatsko društvo za mehaniku
 - Hrvatsko društvo za tehniku zavarivanja
 - Hrvatsko kemijsko društvo
 - Hrvatska udruga za ljevarstvo
 - Udruga hrvatskih rudarskih inženjera (s kojima i dijelimo zajednički uredski prostor)
 - Hrvatski strojarški i brodograđevni inženjerski savez itd.
- c) Hrvatsko metalurško društvo ima dobru suradnju i sa znanstveno-nastavnim ustanovama sa četiri hrvatska sveučilišta:
 - Sveučilište u Zagrebu, Fakultet strojarstva i brodogradnje – Zagreb (FSB)
 - Sveučilište u Rijeci, Tehnički fakultet Rijeka (TFR)
 - Sveučilište u Osijeku, Strojarški fakultet Slavonski Brod (SF)
 - Sveučilište u Splitu, Fakultet elektrotehnike, strojarstva i brodogradnje, Split (FESB)

S prva tri fakulteta HMD je čak i utemeljio Protokole o suradnji, a fakulteti su i izravne članice HMD-a. Sva četiri fakulteta sudjeluju u organizaciji simpozija, njihovi znanstvenici su članovi međunarodnog Uredničkog odbora časopisa *Metalurgija*, sudjeluju u radu tijela HMD-a suglasno Statutu itd.

Mnoge znanstvene ustanove kao članice HMD-a iz inozemstva ili tuzemstva imaju za to i osobni znanstveni (izbor djelatnika u odgovarajuća znanstvena i nastavna zvanja i/ili i za obranu svojih projekata) ali i uz ekonomske pokazatelje. Dovoljno je istaći podatke za jednu ustanovu iz inozemstva – Faculty of Natural Sciences and Engineering University of Ljubljana (FNS) i jednu iz tuzemstva – Tehnički fakultet Sveučilišta Rijeka: obje članice su suk-

COOPERATION IN CROATIA

Cooperation in Croatia This cooperation develops in several directions as well:

- a) As a member of Croatian Engineers Union (HIS) CMS was being invited to the Annual Assemblies of HIS, and upon invitation it participates in actions of HIS organized from time to time. Thus, on the occasion of 120th anniversary of HIS in 1998, it published a book “Establishment of Croatian Engineers Union” where I. Mamuzić wrote a chapter on CMS (p. 225-243). Again, on the occasion of 125th anniversary of HIS in 2003, HIS published the MEMORIAL BOOK (HIS 1975-2003) in which I. Mamuzić wrote a chapter on the past, present and future of the Croatian metallurgy (p. 293-308).
- b) It is mentioned that the cooperation in Croatia with several related associations of technical profession was in exchange of magazines, or opinions, joint professional actions etc.:
 - Croatian Society of Chemical Engineers and Technologists
 - Croatian Society for Fuels and Lubricants
 - Croatian Society for Mechanics
 - Croatian Society for Welding Technique
 - Croatian Chemical Society
 - Croatian Foundry Association
 - Association of Croatian Mining Engineers (CMS shares office premises with)
 - Croatian Machine and Shipbuilding Engineers Union etc.
- c) Croatian Metallurgical Society has a good cooperation also with scientific-educational institutions with four Croatian universities:
 - University in Zagreb, Faculty of Machine and Shipbuilding – Zagreb (FSB)
 - University in Rijeka, Technical Faculty Rijeka (TFR)
 - University in Osijek, Machine Building Faculty Slavonski Brod (SF)
 - University in Split, Faculty of Electrical Engineering, Machine and Shipbuilding, Split (FESB)

With the first three faculties CMS even established Cooperation Protocols, and the faculties are direct CMS members. All four faculties participate in symposium organization, their scientists are members of the international Editorial Board of the magazine *Metalurgija*, they participate in the work of CMS bodies pursuant to the Articles of Association etc.

Many scientific institutions as members of CMS from abroad or Croatia have their personal scientific (selection of employees into adequate scientific and educational professions and/or for defence of their projects) but in addition to economic indicators. It is enough to point out the data for one institution from abroad – Faculty of Natural Sciences

ladne – imaju po 25 članova u HMD-u, primaju besplatno po 12 primjeraka svakog broja časopisa *Metalurgija*, na simpozije mogu prijaviti bez pristojbe neograničeni broj referata sažeci kojih se tiskaju u Zborniku sažetaka te cjelovito odabranih 8 referata/članaka, objaviti sve u časopisu *Metalurgija*, na simpoziju nazočnost neograničenog broja sudionika. Za dvije godine, 2007. i 2008. uplatili su pojedinačno ukupno 1.900 € (25 članova x 38 € – članarina x 2 godine).

FNS je objavio 8 članaka, prijavio 29 referata za simpozij, prima po 12 primjeraka svakog broja časopisa *Metalurgija* (godišnje po 4 broja – ukupno 8 brojeva – 96 primjeraka). Po skromnim cijenama HMD-a (npr. pristojba sa posterom 150 €, na simpozijima jednake međunarodne/svjetske razine i preko 500 €), za FNS ukupna cijena je 9.222 €, a platili su 1.900 € (pozitivna razlika za njih 7.322 €).

TF Rijeka uz jednake uvjete ima prijavljena 24 referata, stvarna cijena 8.472 €, a jednako platili 1.900 € (pozitivna razlika 6.572 €).

U ovom prikazu nije uzeto u obzir i besplatno neograničeno sudjelovanje njihovih znanstvenika na simpoziju uz dobivanje materijala i atraktivne cijene smještaja (npr. hotel – 4 zvjezdice – polupansion ispod 40 €).

Postoje ustanove koje prijave besplatno i preko 70-ak referata u kojima se najčešće daje i njihova znanstvena suradnja s drugim ustanovama.

HMD je prinuđen i na ovaj način suradnje, budući da je jednostavno pitanje: biti ili ne biti, opstojnost HMD-a i časopisa ili ne? Novčana potpora Ministarstva i 1.000 € hrvatskog gospodarstva ne pokriva ni troškove tiska časopisa, samo plaću jednog zaposlenika, zato ga HMD ni nema, a sve aktivnosti od kurirskih do vrlo odgovornih odvijaju se godinama isključivo dragovoljački.

U Slovačkoj je njihovo metalurško društvo prestalo s radom kad samo jedna tvrtka – US Steel – nije davala potporu, a Slovačka ima čak 50 puta jaču metalurgiju od Hrvatske i potpora jedne tvrtke uopće nije presudna. A i Slovenija s 10-ak puta jačom i vrlo profitabilnom metalurgijom od Hrvatske čak nema ni Društvo, kao i sve novonastale države u nas, osim Srbije po pravnom nasljedstvu, što HMD nije osporava. Znanstvenici iz svih ovih država sudjeluju na simpozijima HMD-a i objavljuju radove u časopisu *Metalurgija*, koji je prestižan i priznat, prve kategorije i u njihovim državama, a što oni nemaju, mada su neki njihovi časopisi čak starijih volumena od *Metalurgije* (Srbiji i Sloveniji). Prednjače u objavljivanju znanstvenici Slovenije koji objave čak 1/5 od ukupno objavljenih radova časopisa *Metalurgija*

Sadašnji aktivisti HMD-a su ponosni i sretni svojim radom, jer postignuti rezultati na svjetskoj razini opravdavaju golem uloženi trud, što uz ljubav prema

and Engineering University of Ljubljana (FNS) and one from Croatia – Technical Faculty of University Rijeka: both members are consistent – they have 25 members each in CMS, they receive 12 copies each of every issue of the magazine *Metalurgija* free of charge, they can file for symposiums an unlimited number of reports without any fee, abstracts of which are printed in the Collection of Abstracts and integral versions of selected 8 reports/articles, they can publish everything in the magazine *Metalurgija*, unlimited number of participants can attend a symposium. For two years, 2007 and 2008, they paid individually 1,900 € in total (25 members x 38 € - membership fee x 2 years).

FNS published 8 articles, filed for 29 reports for a symposium, receives 12 copies of every issue of the magazine *Metalurgija* (4 issues per year – 8 issues in total – 96 copies). At modest prices of CMS (e.g. the fee with Poster of 150 €, at symposiums on equal international/world level over 500 €), the total price for FNS is 9,222 €, and they paid 1,900 € (positive difference for them 7,322 €).

With equal conditions TF Rijeka has filed for 24 reports, the actual price 8,472 €, and they paid equally 1,900 € (positive difference 6,572 €).

This overview has not taken into consideration unlimited participation of their scientist at a symposium free of charge together with receiving the material and attractive accommodation prices (e.g. hotel – 4 stars – half board below 40 €).

There are institutions that file for over 70 reports free of charge which mostly contain their scientific cooperation with other institutions.

CMS is forced to cooperate like this too, because there is a simple question: to be or not to be, the existence of CMS and the magazine or not? Financial support of the Ministry and 1,000 € of Croatian economy do not even cover the publishing costs of the magazine, only one employee's salary, and this is why CMS has none, and all the activities ranging from dispatching to very responsible services are being performed for years exclusively on a voluntary basis.

In Slovakia, their metallurgical society ceased to work when it was denied support by only one company – US Steel, and Slovakia has 50 times stronger metallurgy than Croatia and a support by one company is not critical at all. And Slovenia, with 10 times stronger and very profitable metallurgy than Croatia has even no Society, like all the newly established states in ex-Yugoslavia, except for Serbia by legal succession, which was not disputed by CMS. Scientists from all of these states participate in CMS's symposiums and publish the papers in the magazine *Metalurgija*, that is prestigious and recognized, of the first categories in their countries, too, which they do not have, although some of their magazines are of even older volumes than *Metalurgija* (Serbia and Slovenia). Lead in publishing Slovenia's scientists who publish as many as 1/5 of the total number of published papers of the magazine *Metalurgija*

Current activists of CMS are proud of and happy with their work, because the results achieved on the world level justify huge efforts made; they love their profession and

struci je i želja da metalurgija kao struka u Hrvatskoj ne doživi potpuni slom.

Nažalost, od niza navedenih znanstvenih i znanstveno-nastavnih institucija iz inozemstva i tuzemstva ovu razinu suradnje na temelju Statuta HMD-a nije prihvatio jedini fakultet iz metalurgije u Hrvatskoj Metalurški fakultet (MF) Sveučilišta u Zagrebu, Sisak. Naime, svaki dobronamjernik postavlja pitanje kako to da HMD, koji ima izvrsnu suradnju u inozemstvu i tuzemstvu, nema odnosno prekinuta je suradnja s nekim institucijama u Hrvatskoj?! Glede toga daju se kratka objašnjenja:

U vrijeme kad je metalurško društvo utemeljeno na razini hrvatske države (HMD) početkom 1992. izabrani članovi Upravnog odbora HMD-a, pokretači ove akcije bili su djelatnici MF-a Sisak. I. Mamuzić, izabrani predsjednik HMD-a bio je i dekan MF-a, a izabrani tajnik HMD-a V. Ferketić bio je viši predavač MF-a.

MF je bio član HMD-a, na jednak način kao i s drugim ustanovama organizirani su 1. i 2. simpozij (treći u završnoj fazi), sjedište uredništva časopisa *Metalurgija* bilo je u prostorijama MF-a itd. Svi djelatnici MF-a su bili članovi Godišnjih skupština HMD-a, a 2 su člana u Upravnom odboru. Svi djelatnici izabrani u odgovarajuće zvanje dobivali su svaki broj časopisa *Metalurgija*, sudjelovali na simpozijima HMD-a bez pristojbe itd. Sve do kraja mandata dekana I. Mamuzića (1990-1997) nije bilo prigovora od strane MF-a kao ni od bilo koje ustanove u Hrvatskoj ili svijetu.

Izborom za dekana MF-a prof. dr. sc. Ante Markotića (1997-2001) odmah je uslijedio prigovor o netransparentnosti suradnje HMD-a i zahtjev za preuzimanje dijela djelatnosti HMD-a koja je i u Statutu HMD-a: organizacija simpozija i uredništvo časopisa *Metalurgija*. Mada je ovaj prigovor došao samo od jedne od stotinjak suradničkih organizacija, čelništvo HMD-a je vrlo ozbiljno shvatilo poruku o netransparentnosti odnosno prijenosu svojih djelatnosti na MF. Ovo je presedan i nijedan hrvatski fakultet to nije tražio od svojih udruga, neovisno jesu li aktivne ili ne. Sve je proslijeđeno čak i na Izbornu skupštinu HMD-a (1999.) gdje su bili nazočni i zastupnici MF-a i gdje se glasovalo za novo čelništvo u tijelima HMD-a.

U raspravi na Izbornoj skupštini više sudionika je istaklo izuzetne dosege u aktivnosti HMD-a:

- utemeljenje Društva na razini države, što čak ni Sloveniji nije uspjelo (a ni danas još nije utemeljeno);
- izvrsnost časopisa *Metalurgija*, koji je od posrnulog časopisa sada citiran u 30-ak svjetskih baza čak i u SCI-u da je među 4 časopisa tehničkih znanosti u Hrvatskoj prve kategorije, redovitost izlaženja itd. Takvu

wish for metallurgy as a profession in Croatia not to experience the total collapse.

Unfortunately, among the number of the mentioned scientific and scientific-educational institutions abroad and in Croatia, this level of cooperation based on CMS's Articles of Association has not been accepted by the only faculty of metallurgy in Croatia – Metallurgical Faculty (MF) of the University in Zagreb, Sisak. Namely, every well-meaning person raises a question of how come that CMS, that has excellent cooperation abroad and in Croatia, has no or has interrupted the cooperation with certain institutions in Croatia?! With regard hereto, brief explanations are given in the text to follow:

At the time when metallurgical society was founded on the level of the Croatian state (CMS) by the beginning of 1992, elected members of the Management Board of CMS, initiators of this action were employees of MF Sisak. I. Mamuzić, elected president of CMS was the dean of MF, and elected secretary of CMS V. Ferketić was a senior lecturer of MF.

MF was a member of CMS, equally as with other institutions there were organized the 1st and the 2nd symposium (the third one in the final stage), the headquarters of the editorial board of the magazine *Metalurgija* were in the premises of MF etc. All the MF employees were members of Annual Assemblies of CMS, and 2 members are in the Management Board. All the employees selected into an adequate profession were receiving every issue of the magazine *Metalurgija*, participated in the symposiums of CMS without any fee etc. All the way through to the end of the dean's mandate I. Mamuzić (1990-1997) there was no complaint by MF or any other institution in Croatia or in the world.

Upon electing prof. DSc Ante Markotić (1997-2001) the dean of MF, there was immediately filed a complaint on non-transparency of cooperation with CMS and a request to take over a part of the activity of CMS contained in the Articles of Association of CMS: organization of symposiums and editing the magazine of *Metalurgija*. Although this complaint was filed by only one out of about hundred cooperative organizations, the leadership of CMS took very seriously this message on non-transparency i.e. on transfer of its activities to MF. This was a precedent and none of the Croatian faculties has requested this from their associations, independent of their being active or not. Everything was forwarded even to the Election Assembly of CMS (in 1999) attended by MF representatives, too, where the new leadership in CMS's bodies was voted for.

Many participants in the discussion at the Election Assembly stressed exceptional achievements in CMS's activities:

- foundation of the Society on the national level, which even Slovenia did not succeed in (and it has not been founded so far);
- excellence of the magazine of *Metalurgija*, that is now, having stumbled down, being quoted in about 30 world bases, even in SCI, that it is among 4 magazines of technical sciences in Croatia of the first cate-

- razinu časopisa nemaju ni države s mnogostruko većom metalurškom proizvodnjom od Hrvatske, npr. Mađarska, Češka, Slovačka, Poljska, Ukrajina, a ni Slovenija;
- organizacija međunarodnih simpozija s nizom svjetskih i domaćih ustanova, veliki broj sudionika i referata, što je rijetkost ne samo za Hrvatsku nego i u svijetu;
 - mogućnost očevida svih zainteresiranih u rad tijela HMD-a: planovi i programi razvitka, izvješće o radu, financijsko izvješće itd.
 - djelatnosti koje izvodi HMD su u skladu Statuta i podržavaju je sve ustanove osim MF-a. Dok druge struke imaju i desetak strukovnih udruga (npr. kemija, strojarstvo itd.), struka metalurgije ima samo jednu, a utemeljenu daleko ranije od MF-a. Poželjno je da znanstvenici MF-a iz svog područja djelatnosti organiziraju nove udruge, što bi bio i veliki prinos ukupnom razvitku metalurgije u Hrvatskoj - granama procesne, fizičke i mehaničke metalurgije.

Zaključno na Izornoj godišnjoj skupštini HMD-a odbijen je stav o netransparentnosti u djelatnosti HMD-a i reizabrano je ranije čelništvo (tajnik V. Ferketić odstupio je glede zdravstvenih poteškoća). Poslije toga MF je prestao biti članica HMD-a, čak se je i sjedište Uredništva časopisa *Metalurgija* preselilo u Zagreb, uz izjavu člnika MF-a: Metalurgija ovdje više ne stanuje. Članstvo MF-a u HMD-u nije se ni poslije obnovilo. Po priopćenju novoizabranog dekana MF-a prof. dr. sc. J. Črnka (2001-2005 kao dekan prvi odgovorni) Kolegij MF-a nije zainteresiran za članstvo MF-a u HMD-u. Neovisno od toga, Upravni odbor HMD-a, koje znanstveno društvo je u istom polju znanosti kao i MF 2.08 *Metalurgija* je i dalje jednostrano zadržala stav kao i prema svojim službenim ostalim članicama hrvatskih fakulteta, koji plaćaju članarinu (ali drugo polje znanosti): besplatna dostava časopisa *Metalurgija*, sudjelovanje bez pristojbe s referatima na prvih 7 simpozija HMD-a (od 1992-2008 MF je uplatio samo 2 pristojbe – ukupno 750 eura, stavljanje svojih tiskovina na raspolaganje MF-u tijekom održavanja njihovih manifestacija (npr. Smotra Sveučilišta u Zagrebu) itd. Navodi se i podatak da članice HMD-a (s plaćenom članarinom) iz Fakulteta u Hrvatskoj (FSB Zagreb, TF Rijeka, SF Slavonski Brod) u časopisu *Metalurgija* objave samo nekoliko postotaka od ukupno svojih objavljenih članaka u svim časopisima. Na 2. redovitoj sjednici Fakultetskog vijeća MF-a (16.11.2005.) usvojeno je završno izvješće o trogodišnjim znanstvenim projektima MF-a 2002-2005. Od ukupno 108 objavljenih članaka u svim časopisima u svijetu i Hrvatskoj, u *Metalurgiji* je za ovo razdoblje objavljeno 48 ili čak

- gory, that it is regularly published etc. Such level of a magazine do not have countries with many times larger metallurgical production than Croatia, e.g. Hungary, Czech Republic, Slovakia, Poland, Ukraine, not even Slovenia;
- organization of international symposiums with an array of the world and Croatian institutions, large number of participants and reports, which is rare not only in Croatia but in the world as well;
 - possibility of gaining insight for all the interested ones into the work of CMS's bodies: development plans and programs, report on the work, financial report etc.
 - activities performed by CMS are in compliance with the Articles of Association and they are supported by all the institutions except MF. While other professions have a dozen of professional associations (e.g. chemistry, machine building etc.), the profession of metallurgy has only one, established far earlier than MF. It is desirable that the scientists of MF organize new associations in their activity area, which would be a great contribution to the complete development of metallurgy in Croatia - branches of process, physical and mechanical metallurgy.

As a conclusion, at the annual Election Assembly of CMS, the attitude regarding non-transparency in the activity of CMS was rejected and former leadership was re-elected (the secretary V. Ferketić stepped away for health difficulties). After that, MF ceased to be a member of CMS, even the headquarters of the Editorial Board of the magazine *Metalurgija* moved to Zagreb, with a statement by the leaders of MF: Metallurgy does not reside here anymore. The membership of MF in CMS has not been renewed later either. As according to the information of a newly elected MF dean prof. J. Črnko, PhD (2001-2005 as a Dean First responsible) the MF Board is not interested in membership of MF in CMS. Independent thereof, the Management Board of CMS, that is a scientific society in the same field of science as MF 2.08 *Metalurgija* has one-sidedly retained its attitude as towards its other official members of Croatian faculties, that pay a membership fee (but in another field of science): delivery of the magazine *Metalurgija* free of charge, participation without any fee with reports in the first 7 symposiums of CMS (from 1992-2008 MF paid only 2 fees – 750 Euro in total), placing its printed material at MF's disposal during their manifestations (e.g. Review of University in Zagreb) etc. There are the data mentioned too that CMS members (with a membership fee paid) from Faculties in Croatia (FSB Zagreb, TF Rijeka, SF Slavonski Brod) publish in the magazine *Metalurgija* only a small percentage of own articles published in all magazines in total. At the 2nd regular session of the MF Faculty Council (16.11.2005) the final report on three-year scientific projects of MF 2002-2005 was adopted. Out of 108 articles published in total in all magazines in the world and in Croatia, 48 or as many as 44.4% of all reports of MF scientists were published in *Metalurgija* for this period. These data as well represent evidence of CMS's contribution

44,4% svih radova znanstvenika MF-a. I ovi podaci su očevid o prinosu HMD-a kao nakladnika časopisa *Metalurgija* i valoriziranja hrvatske znanosti u polju metalurgija.

d) U Hrvatskoj postoji sada mali broj metalurških tvrtki:

- Željezara Split
- Vatrostalna Sisak
- Željezara Sisak (raniji naziv)
- Tvornica lakih metala (TLM) Šibenik
- Tvrtke ljevaonica učlanjene su u Hrvatsku udruhu za ljevarstvo

S prve dvije tvrtke koje su dugogodišnje članice HMD-a suradnja je dobra, a tvrtke imaju zastupnike u Upravnom odboru HMD-a i ovisno o broju članova imaju do 4 zastupnika na godišnjoj skupštini HMD-a. Na svim simpozijima su bili suorganizatori.

Nažalost, sa Željezaram Sisak (često mijenjano ime ovisno o vlasničkoj strukturi, prethodno Valjaonica cijevi Sisak, sada CMC – Commercial Metals Company), majkom metalurškog društva koja je iznjedrila društvo, a i časopis *Metalurgija*, dugogodišnji odnosi od 1952. prekinuti su 2005. Bile su ranije i dvije privatizacije (Truboimpeks, pa Mechel), ali suradnja je uvijek bila odlična: od članstva u HMD-u, više zastupnika u tijelima HMD-a, suorganizacije ali i domaćinstva simpozija, razmjene strukovnih mišljenja, dostave 50 primjeraka svakog broja časopisa *Metalurgija*, itd.

Nažalost, dolaskom prof. Ante Markotića za savjetnika u Valjaonici cijevi Sisak odmah je prekinuta suradnja.

To je bio slučaj i s Tvornicom lakih metala izborom imenovanog profesora za savjetnika. Njegovim odlaskom iz TLM-a i izborom za direktora I. Koštana, dugogodišnja ranija suradnja TLM-HMD iznovice se nastavila suorganizacijom simpozija HMD-a itd.

Postavlja se pitanje kako je došlo do kolapsa hrvatske metalurgije, a HMD kao i Metalurški fakultet imaju u svojim redovima priznate metalurške znanstvenike i stručnjake i tko je za to odgovoran i sada ali i u budućnosti? Odgovor je jednostavan. Za razliku od drugih tranzicijskih država koje su u metalurgiji prolazile iste poteškoće, ali su za prestrukturiranje uzele najjače stručnjake (npr. u Sloveniji tim stručnjaka predvodio je prof. dr. sc. Franc Vodopivec i slovenska metalurgija danas je čak jača od vremena do 1990. i vrlo rentabilna), u Hrvatskoj to nije bio slučaj. Nikada poslije 1990. državna tijela nisu zatražila niti mišljenje, niti pomoć, niti suradnju od HMD-a ili MF-a.

Jedino je imenovani prof. dr. sc. Anto Markotić „ad personam“ i po pozivu državnih tijela sudjelovao ili bio vodeći u nizu projekata prestrukturiranja hrvatske metalurgije: od Projekta restrukturiranja crne metalurgije (1992-1993), ekspertiza za tvornice

as a publisher of the magazine *Metalurgija* and of the Croatian science assessment in the field of Metallurgy.

d) There is a small number of metallurgical companies in Croatia now:

- Željezara Split
- Vatrostalna Sisak
- Željezara Sisak (former name)
- Tvornica lakih metala (TLM) Šibenik
- Foundry companies became members of Croatian Foundry Association

With the first two companies, that are members of CMS for many years now, the cooperation is good, and the companies have their representatives in the Management Board of CMS and depending on the number of members they have up to 4 representatives at the annual assembly of CMS. They were co-organizers at all the symposiums.

Unfortunately, the relations over many years since 1952 with Željezara Sisak (the name was often changed depending on the ownership structure, the one before the last one Pipe Rolling Mill Sisak, now CMC – Commercial Metals Company), the mother of metallurgical society that gave rise to the society, were interrupted in 1995. There were two privatizations before (Truboimpeks, then Mechel), but the cooperation was always excellent: from membership in CMS, several representatives in CMS's bodies, both co-organization and hosting of symposiums, exchange of professional opinions, delivery of 50 copies of each issue of the magazine *Metalurgija*, etc.

Unfortunately, upon arrival of prof. Ante Markotić to the position of an advisor in Pipe Rolling Mill Sisak, the cooperation was immediately interrupted.

This was also the case with Tvornica lakih metala by electing the mentioned professor advisor. When he left TLM and I. Koštana was elected director, longstanding earlier cooperation TLM-CMS was again continued in co-organization of CMS symposiums etc.

There is a question raised about how the Croatian metallurgy was brought to collapse, and both CMS and Metallurgical Faculty have recognized metallurgical scientists and experts among themselves and who is responsible for that as much as now as in the future, too? The answer is a simple one. Unlike other transition countries that were undergoing the same difficulties in metallurgy, but took the strongest experts for restructuring (e.g. a team of experts in Slovenia was led by prof. Franc Vodopivec, PhD and Slovenian metallurgy is even stronger today than it was in the times until 1990 and it is very economical), this was not the case in Croatia. After 1990, the state authorities have never asked for either an opinion, or help, or cooperation from CMS or MF.

It was only the appointed prof. Anto Markotić, PhD, who participated or was leading “ad personam” and upon invitation of the state authorities in a number of the Croatian metallurgy restructuring projects: Ferrous Metallurgy Restructuring Project (1992-1992), an expertise for ferro-alloys factories (Šibenik, Dugi Rat), especially in

ferolegura (Šibenik, Dugi Rat), posebice u TLM-u (početak 1995. godine). Rezultati npr. za TLM mogu se uz očevid u praksi i vidjeti u dnevnom tisku: Tako npr. Nedjeljna Dalmacija, dana 17. ožujka 2000. donosi članak „Učinci tehničko-tehnološke studije stanja u TLM-u ekspertnog tima prof. dr. sc. Ante Markotića – Ekspertno trošenje love“. Među ostalim stoji (citati): „Mjere li se učinci ekspertne skupine rezultatima poslovanja TLM-a, tada su oni doista poražavajući ..., u 26 točaka navode se mjere koje su prijeko potrebne za revitalizaciju tvrtke, no od toga su u ove četiri godine realizirane samo dvije.“

Izgradnjom automatiziranog toplovaljačkog stanja u TLM-u pod novinskim geslom „Nova valjaonica utrostručuje proizvodnju“, predsjednik HMD-a I. Mamuzić je za Slobodnu Dalmaciju dao intervju (29.07.2002.) „Bez jake industrije Hrvatske nema budućnosti“, u kojem je sporadično navedena sumnja u TLM-ovu ekonomičnost i stručnost prof. A. Markotića glede aluminijske industrije. Odgovor je stigao vrlo brzo. U Slobodnoj Dalmaciji (10.10.2002.) dipl. inž. Slobodan Mačukat piše „TLM je ušao u suvremeni tehnološki svijet“, navodi se povećanje proizvodnje sa sadašnjih 28 na 100 tona po radniku, te na kraju zaključuje „O svemu ovome Mamuzić očito ništa ne zna. To mu, pak, očito ništa ne smeta da sa svoje znanstvene visine dijeli lekcije, i to u trenutku koji je možda i najosjetljiviji u 65 godina aluminijske industrije u Šibeniku. Čovjek ne može, a da se ne zapita, tko takve ljude plaća i u čijem interesu oni tako javno nastupaju“ (završen citat).

Odgovor gospodinu S. Mačukatu tko njega, njegove istomišljenike i naredbodavca plaća dala je Hrvatska vlada, Slobodna Dalmacija, 20. lipnja 2004. „Vladin konop spasa za Tvornicu lakih metala“ citat: „Šibenskom aluminiju u TLM-u ubrizgana je financijska injekcija pomoći u vidu reprograma potraživanja iz prethodnih godina u ukupnom iznosu od 130 milijuna kuna, te izdavanje državnog jamstva HBOR-u za osiguranje izvršenja plana proizvodnje i izvoza za ovu godinu u iznosu od sto milijuna kuna te dodatnih 7,7 milijuna kuna za završetak modernizacije topionice aluminijske.“ Dopuna je Dnevnik, 10. prosinca 2004. str. 5., „Ozdravljenje TLM-a moguće je isključivo uz pomoć države“ – gdje je navedeno da se „jedino uz novu financijsku pomoć države od oko 250 milijuna kuna može ostvariti planirano povećanje proizvodnje i smanjenje gubitka u idućoj godini“ – izjava predsjednika nove Uprave TLM-a Ive Koštana.“

S druge strane, poslije neuspjele privatizacije i odustajanja Mechela u Željezari Sisak, iznovice je imenovana ekspertna grupa gdje je opet glavni stručnjak prof. dr. sc. A. Markotić. Za Hrvatski fond za privatizaciju izrađen je „Koncept programa restrukturiranja crne metalurgije Republike Hrvatske“

(by the beginning of 1995). E.g., the results for TLM can be seen both in practice and in daily press: Thus e.g. in Nedjeljna Dalmacija/Sunday's Dalmatia on 17 March 2000, there is published an article “Effects of Technical-Technological Study of the Condition in TLM by Expert Team of prof. Ante Markotić, PhD – Expert Spending of Money”. Among other things, there is mentioned the following (quote): “If effects of expert team are measured by the results of TLM business operation, then they are really crushing ..., there are measures specified in 26 items that are indispensable for the company's revitalization, but only two of them have been realized in these four years.”

Regarding construction of an automated warm rolling mill plant in TLM under the newspaper's motto “New Rolling Mill Triples the Production”, president of CMS I. Mamuzić gave an interview for Slobodna Dalmacija/Free Dalmatia (29.07.2002) “There is No Future Without a Strong Industry in Croatia”, which sporadically expressed doubt in TLM's economical production and prof. Ante Markotić's competence regarding aluminium. The answer came very quickly. In Slobodna Dalmacija (10.10.2002) grad. eng. Slobodan Mačukat writes about “TLM entering a modern technological world”, it indicates an increase in production from the current 28 to 100 tons per worker, and finally he concludes “Mamuzić obviously hasn't got a clue about all of this. On the other hand, it doesn't bother him obviously to read us lectures from above his scientific level, at the moment that might be the most sensitive one in 65 years of aluminium industry in Šibenik. One cannot help asking him/herself, who pays such people and in whose interest they appear in public” (unquote).

The answer to Mr. S. Mačukat about who pays him, his followers and principals was given by the Croatian Government, Slobodna Dalmacija, 20 June 2004 “The Government's Rescue Rope for TLM” quote: “Šibenik aluminium in TLM received a financial injection of support as a re-programme of receivables from the preceding years in the total amount of 130 million HRK, and as a national guarantee issued to HBOR/Croatian Reconstruction and Development Bank to provide for the execution of production and export plan for this year in the amount of hundred million HRK and additional 7.7 million HRK to finalize modernization of aluminium foundry.” This was amended in Daily News, on 10 December 2004, page 5 “TLM can recover only with help of the state” – mentioning that “the planned increase in production and decrease of the loss next year can be realized only with a new financial help of the state of about 250 million HRK” – the statement by the president of the new Management Board of TLM, Ivo Koštana.”

On the other hand, after unsuccessful privatization and waiver of Mechel from Željezara Sisak, an expert team was appointed again with prof. A. Markotić, PhD, as the major expert. The “Concept of Ferrous Metallurgy Restructuring Program of the Republic of Croatia” was prepared for the Croatian Privatization Fund (Zagreb, 03.11.2004). In an in-

(Zagreb, 03.11.2004.). U nedopustivo površno izrađenoj studiji nudi se „spasonosno rješenje“ o spajanju Željezara Sisak i Željezara Split u „Cro Steel“.

I ovom prigodom predsjednik HMD-a se prepoznao odgovornim i dao osvrt – intervju objavljen u Dnevniku, 10. prosinca 2004., str. 5 pod nazivom „Spajanje Željezara upropastit će Split, a neće spasiti Sisak“ uz dopunu „U Analizi crne metalurgije iz 1992. i 1993. isti su ljudi bili protiv spajanja“. Uz podršku djelatnika i sindikata Željezara Split do spajanja Željezara nije došlo. Unatoč tomu, prof. dr. sc. A. Markotić postao je kao specijalista za proizvodnju željeza/visoko pećarstvo glavnim savjetnikom za valjanje cijevi, kao što je godinama bio savjetnik za aluminij u TLM-u. Skrb HMD-a za opstojnost svoje struke dat je i u intervjuu I. Mamuzića Šibenskom listu br. 2217 od 1. srpnja, 2006. „Metalurgija je samo u Hrvatskoj neprofitabilna“ gdje među ostalim stoji (citirano): „Vjerovali ili ne, Hrvatska je u sanaciju svoje metalurgije uložila više novaca nego neke zemlje, koje sada bilježe rast proizvodnje čelika. Neke računice govore o potrošenih milijardu dolara. Novac se, međutim, nije ulagao u nove tehnologije, nego u kupovinu socijalnog mira, u menadžerske plaće i studije od kojih niti jedna, za razliku od drugih zemalja, nije dala konkretne rezultate“ (završen citat, a izjava nikad nije demantirana).

Samo iz nekoliko ovih primjeraka jasno proizlazi za sadašnja ali i buduća pokoljenja čija će struka biti metalurgija a općenito i za stanje tehnike u Hrvatskoj, da stručnjaci i znanstvenici HMD-a i MF Sisak nisu odgovorni za kolaps hrvatske metalurgije. Djelomice se može ublažiti i odgovornost prof. dr. sc. Ante Markotića koji je sudjelovao u svim neuspjelim studijama restrukturiranja hrvatske metalurgije, te kao priznati stručnjak i znanstvenik za proizvodnju željeza – visoko pećarstvo je uvijek bio glavni savjetnik za raznoliku metaluršku proizvodnju, osim za svoju specijalnost – proizvodnju gvožđa/visoke peći. On je uvijek osobno bio pozvan i angažiran u ime državnih tijela. Nekome je bila potrebna titula, podobnost, poslušnost, a ne znanje.

Stvar je vlastite savjesti pojedinca hoće li npr. priznati okulist prihvatiti poziv za obavljanje kirurških operacija, neovisno o primamljivosti novčane potpore ili drugim privilegijama, poslovnim karticama, itd.

Općenito, problematika metalurške proizvodnje u Hrvatskoj ima utjecaj i na djelatnost HMD-a. Dok pojedine strukovne udruge od gospodarstva dobivaju povoljne novčane donacije, to je za HMD na razini 1000 eura, kao članarine.

Sve ove velike i izuzetno redovite aktivnosti (povezivanje, održavanje djelatnosti HMD-a, simpoziji, suradnja s velikim brojem znanstvenih i stručnih institucija i tvrtki u inozemstvu i tuzemstvu), članovi

admissibly superficial study there is offered a “life-saving solution” on Željezara Sisak and Željezara Split merger into “Cro Steel”.

On this occasion too, president of CMS recognized himself as responsible and gave an overview – an interview published in Daily News, on 10 December 2004, page 5 titled “Željezara Merger Will Ruin Split, and It Won't Save Sisak” amended by an article “In the Ferrous Metallurgy Analysis from 1992 and 1993 the Same People Were Against Merger”. Supported by employees and the Union of Željezara Split, Željezara merger was not brought about. Despite hereof, prof. A. Markotić, PhD, as a specialist for steel production/high furnace operation, became a chief advisor for pipes rolling, as well as he was advisor for aluminium in TLM. The care of CMS for existence of its profession was given in the interview of I. Mamuzić to Šibenski list No. 2217 from 1 July, 2006 “Metallurgy is Unprofitable Only in Croatia” mentioning among other things (quote): “Believe it or not, Croatia invested in repair of its metallurgy more money than some countries, that register now the growth in steel production. Some calculations mention a billion dollars spent for this. However, the money was not invested in new technologies but in buying social peace, in managers' salaries and studies none of which, unlike other countries, gave any concrete results” (unquote, and the statement has never been refuted).

Only a few of these examples clearly show both for the present and the future generations whose profession will be metallurgy and for the condition of technical branches in Croatia in general, that experts and scientists of CMS and MF Sisak are not responsible for the collapse of the Croatian metallurgy. Responsibility of prof. Ante Markotić, PhD, who participated in all unsuccessful studies of the Croatian metallurgy restructuring, can partly be alleviated, and as a recognized expert and scientist for iron production – high furnace operation he was always a chief advisor for various metallurgical production, except for his specialty – pig iron production/high furnaces. He was always personally invited and engaged on behalf of the state authorities. Someone needed a title, political credentials, obedience, and not knowledge.

It is a matter of one's own conscience if e.g. an recognized ophthalmologist would accept an invitation to perform complex surgeries, independent of how alluring financial support is or other privileges, business Card, etc.

In general, problem issues of metallurgical production in Croatia influence the activity of CMS, too. While some professional associations obtain favourable money donations from the economy, for CMS this remains on the level of 1.000 Euro, as a membership fee.

All of these comprehensive and extremely regular activities (connections, maintenance of the activity of CMS, symposiums, cooperation with a large number of scientific and professional institutions and companies abroad and in

HMD-a posebice predsjednik I. Mamuzić, koji ujedno obnaša i funkciju glavnog i odgovornog urednika časopisa *Metalurgija* od 1984., obavljaju bez stalnih zaposlenika, na potpuno dragovoljačkom temelju tj. bez naknade ili honorara. Dokaz je i u podatku da od podizanja HMD-a na državnu razinu 1992. do sada – 2008. nikad nije isplaćen ni jedan honorar.

Novčana potpora Ministarstva znanosti, obrazovanja i športa udruzi HMD-a pokriva troškove tiska časopisa, što je samo djelić ukupnih troškova i za časopis i djelatnost HMD-a. Da bi se opstalo uz stalni rast kakvoće časopisa *Metalurgija* (što dokazuje njegova prestižnost u svijetu), prof. I. Mamuzić je uz 45-godišnji besplatni rad u metalurškom društvu i 23 godine kao glavni i odgovorni urednik, sa svog znanstvenog projekta u razdoblju 2002-2006. još i doznačio (uz suglasnost Ministarstva) preko 20.000 €, umjesto svojih mogućih putovanja na kongrese u tuземstvu i inozemstvu, kao njegove kolege.

ZAKLJUČAK

55. obljetnicu utemeljenja 1952.-2007. Hrvatsko metalurško društvo obilježava u izuzetno teškoj situaciji hrvatske metalurgije. Od oko 2.500.000 t godišnje raznih metalurških proizvoda u 1990. do 2007. srušena su ili prestala s radom postrojenja oko 2.000.000 t/god. proizvoda (oko 850.000 t/god. koksa, 200.000 t/god. željeza, 300.000 t/god. čelika, 150.000 t/god. ferolegura, 250.000 t/god. traka i gredica, 35.000 t/god. bešavnih cijevi, 40.000 t/god. betonskog čelika, 10.000 t/god. elektroda, iznad 80.000 t/god. elektrolize aluminija, itd).

Hrvatsko metalurško društvo je utemeljeno i odgovorno za razvitak i budućnost Hrvatske, a sa svrhom da se doprinos njenom napretku temelji na promicanju metalurgije. Nažalost, HMD nikad nije dobio upit niti je zatraženo njegovo strukovno mišljenje od službenih tijela Hrvatske glede restrukturiranja i budućnosti hrvatske metalurgije. HMD je imao mogućnost biti samo promatrač propasti hrvatske metalurgije. Ovako mišljenje nije čak nikad ni zatraženo od stručnjaka i znanstvenika Metalurškog fakulteta Sveučilišta u Zagrebu, Sisak.

Preostale aktivnosti u nadležnosti Statuta, HMD je izuzetno uspješno provodio: od priznanja za dosege od srodnih svjetskih udruga što dokazuje suradnja i do 50-ak država, tisak i redovitost objavljivanja prestižnog znanstvenog časopisa *Metalurgija*, organizacija svjetskih simpozija „Materijali i metalurgija“ gdje se prijavi i preko 600 referata itd.

Namjera Hrvatskog metalurškog društva nije ni probitak niti želja da se impresionira svojim uspjesima, nego stvaranje prigoda za rad i stvaralaštvo, za bolje životne uvjete i duševni mir. Poticat će zato i stjecanje znanja i stvaranje povjerenja, samopouzdan-

(Croatia) are being performed by the members of CMS, especially the president I. Mamuzić, who also performs the function of the editor-in-chief of the magazine *Metalurgija* since 1984, without any permanent employees, on a completely voluntary basis i.e. without any compensation or honorarium. The evidence lies in a datum that since CMS was raised up to the national level in 1992 until now – 2008 there has never been paid one honorarium.

Financial support by the Ministry of Science, Education and Sports to the CMS association covers the publishing costs of the magazine, which is only a small part of the total costs both for the magazine and the activity of CMS. In order to exist and permanently raise the quality of the magazine *Metalurgija* (proven by its being prestigious in the world), in addition to his 45-year-old work in metallurgical society free of charge and 23 years as editor-in-chief, prof. I. Mamuzić also paid (with the Ministry's consent) over 20,000 € from his scientific project in the period 2002-2006, instead of travelling to congresses in Croatia and abroad, like his colleagues do.

CONCLUSION

Croatian Metallurgical Society celebrates 55th anniversary of foundation 1952-2007 in an extremely difficult situation of Croatian metallurgy. Out of about 2,500,000 t of various metallurgical products per year in 1990 until 2007 plants of about 2,000,000 t of products per year (about 850,000 t of coke per year, 200,000 t of iron per year, 300,000 t of steel per year, 150,000 t of ferro-alloys per year, 250,000 t of strips and billets per year, 35,000 t of seamless pipes per year, 400,000 t of concrete steel per year, 10,000 t of electrodes per year, over 80,000 t of aluminium electrolysis per year etc.) were torn down or put out of operation.

Croatian Metallurgical Society is founded and responsible for development and future of Croatia, with the purpose to base the contribution to its progress on promotion of metallurgy. Unfortunately, CMS has never received an inquiry nor was its professional opinion requested by official bodies of Croatia regarding restructuring and future of Croatian metallurgy. CMS had a possibility to be only a bystander to the collapse of Croatian metallurgy. Thus, an opinion has never been even requested by experts and scientists of the Metallurgical Faculty of the University in Zagreb, Sisak.

The remaining activities within competence of the Articles of Association were successfully performed by CMS: from acknowledgement for achievements by related world associations proven by cooperation with up to 50 countries, printing and regular publishing of a prestigious scientific magazine *Metalurgija*, to organization of world symposiums “Materials and Metallurgy” where over 600 reports are filed to be presented etc.

The intention of the Croatian Metallurgical Society is to neither secure advantage nor display our successes but to establish the conditions for work and creativity, for better living conditions and spiritual peace. Therefore, it shall fo-

ja i dostojanstvo članova. Želimo da nas uvažavaju, a mi ćemo uvažavati prava i način mišljenja ostalih.

Članovi HMD-a, zaljubljenici u svoju struku – metalurgiju kojoj su ostali vjerni i dosljedni cijeli život, svjesni su da je metalurgija povijesno išla gore, dolje, ali nikad nije prestala. Želja je da se i u Hrvatskoj pokloni pozornost metalurgiji kao i u mnogim državama.

Jednako želimo iskazati divljenje, počast i veliko poštovanje svim pojedincima i naraštajima inženjera i tehničara Željezare Sisak (a kasnije i šire), koji su utemeljili našu udrugu i pridonosili njenom rastu kroz proteklih 55 godina. Mnogi od njih su umrli. Slava im i hvala.

ster knowledge, trust, self-reliance and dignity among its members. We want to be respected and we shall respect the rights and opinions of others.

Members of CMS, lovers of their profession – metallurgy to which they remained loyal and consistent throughout their lives, are aware that metallurgy in the history went up and down, but it never stopped. There is a wish to pay attention to metallurgy also in Croatia as it is in many other states.

We also wish to express our admiration, honour and great respect to all the individuals and generations of engineers and technicians of Željezara Sisak (and beyond, later on), who established our association and contributed to its growth through the past 55 years. Many of them died. May their memory live with gratitude.

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Note: – In cited magazines of *Metalurgija* the author is I. Mamuzić, and in [7] co-author, and author N. Devčić, in [16, 18] co-author with W. Lehnert, and [24] author A. Hensel.

– V. Mišura, prof. is responsible for English language