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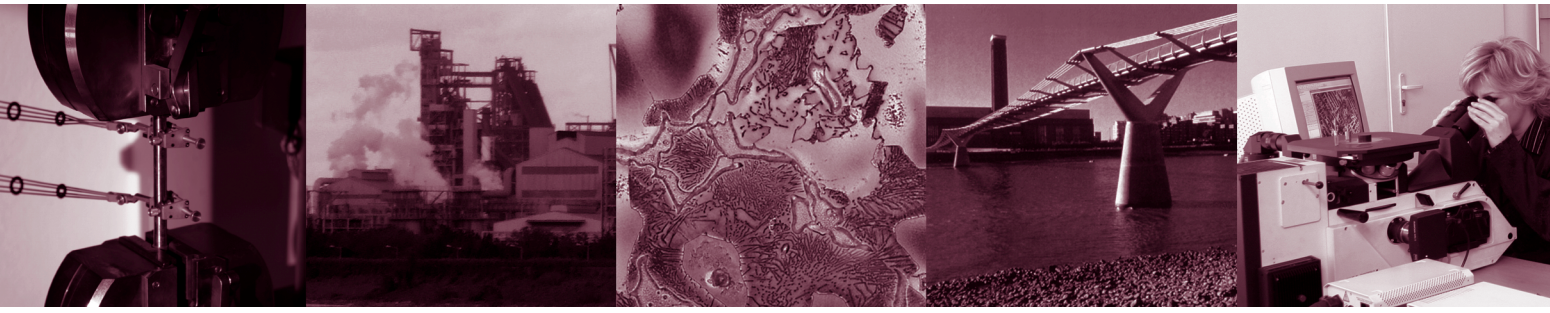

Editor-in-Chief Prof. Leszek A. Dobrzański

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as the organ of the Commitee of Materials Science
of the Polish Academy of Sciences

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It was said...

Ku-Taek Lee

Chairman of Executive Management Committee and CEO of POSCO in Pohang in South Korea

12th October 2007 elected as the 31st Chairman of the International Iron and Steel Institute (IISI)

(...) Looking back on the history of 36 years, we have not simply manufactured steel. We have sowed the seeds of hope on the barren ground without steel, raised challenging spirit in all adversities and cultivated the self-confidence that we also can do. As a result, POSCO has gown up as a world-class steel enterprise, and realised the image of the enterprise that provides the entire nation with hope and dream (...). As a bamboo tree forms a node in each appropriate time, enterprises also need to strengthen determination to take off in the future looking back on the past. This year, one year ahead of the age free from vacillation of the company, is the appropriate time to tidy the history of growth that the company has run breathlessly and to prepare a new start. We have a dream toward "the everlasting enterprise Global POSCO". The future of POSCO we are dreaming is an enterprise that has capability able to vie in the global competition, leads new technologies of 21st century, and of which members by themselves enlarge their dream and show their maximum abilities. Today we set up and announced a new vision in order to realise such a great dream. [Creating Another Success Story] Our vision is to write a mythological story of a new success in the world stage for the development of the society of mankind. All of us executives and employees of POSCO and the invested subsidiaries have to call together our minds and actions in order to continue mythological success story.(...) Let's step forward in a new way, (...), with resolute attitude of all of us today (...) Let's change fundamentals of enterprise thoroughly to solidify the identity as a private corporation, and take off from local enterprise to global enterprise and from follower to pioneer of the technology. Pain follows in improving a road on the unknown field and achieving innovation, however, its fruits are sweet and beneficial to the world. Let's proceed to complete Global POSCO Way with a daring resolution to make the last enterprise to produce steel with self-confidence that all of us become heroes of new mythological success story as far as people using steel exist on the earth (...).

30th March 2007 on the occasion of the 39th anniversary of the foundation of POSCO.

Editorial

In Daejeon, Korea on 7th-11th October 2007 the subsequent 10th, so the jubilee International Scientific Conference on Advances in Materials and Processing Technologies (AMPT'2007) which begun at the Dublin City University, Ireland in 1993 with the initiative of Prof. M.S.J. Hashmi, the Honorary Professor of the Silesian University of Technology in Gliwice, Poland, took place. The Conference was hosted by the National Research Laboratory for Computer Aided Materials Processing at the Korea Advanced Institute of Science and Technology (KAIST). The Conference was held after the first meeting at the Dublin city and four subsequent Conferences took place at the Dublin City University in 1995, 1999 and 2003. The meetings were also organised in Portugal in 1997, Malaysia in 1998, Spain in 2001, Poland in 2005 by the Institute of Engineering Materials and Biomaterials of the Silesian University of Technology I direct and USA in 2006. The Chairman of the 10th wonderfully organised AMPT'2007 conference was Prof. Yong Taek Im, and the one writing those words – a member of its Steering Committee. Among the institutions sponsoring that 10th conference there was the World Academy of Materials and Manufacturing Engineering WAMME. The papers originated from 23 countries around the world, including Australia, Brazil, China, Canada, Croatia, France, Germany, Hong Kong, India, Iran, Ireland, Italy, Japan, Malaysia, Nigeria, Poland, Portugal, Saudi Arabia, Spain, Thailand, Taiwan, UK, and USA. The Conference delegates were especially interested in a wonderful plenary presentation by Dr Ohjoon Kwon, a Vice-President of the POSCO – the forth steel producer in the World with ca. 33 million tonnes of annual steel production. Not smaller impression was made by an industrial visit in one of the biggest in the World metallurgy factories in Pohang, belonging to that concern. Just those events induced me to make P.T. Readers of Archives of Materials Science and Engineering familiar with the issues of iron and steel production.

However, the industrial application of FINEX® ironmaking process in Pohang by POSCO, differing from the traditional cokebased blast-furnace process used over the past three centuries and capable of direct producing "hot metal" or molten iron from iron ore and coal fines made the biggest impression. This revolutionary, eco-friendly ironmaking process allows the direct use of iron-ore fines and non-coking coal. The iron fines are reduced as they flow through a descending series of fluidised-bed reactors. The hot-compacted iron and briquetted coal are then loaded into a meltergasifier, where the heat from coal combustion melts the iron. Before POSCO's developed the FINEX® ironmaking process, it was difficult to imagine making steel without a blast furnace. Now the global industry acknowledges that POSCO have succeeded where others have failed. In addition to substantially reducing up-front capital investment and ongoing raw materials costs, this revolutionary process significantly reduces smokestack emissions. A 1.5 million tonnes-per year plant is slated for commissioning in April 2007 at POSCO Pohang Works, and POSCO expects to make the first full-scale commercial deployment at their India steelworks in the state of Orissa scheduled to break ground in 2008. Backed by a local mining lease for 600 million tonnes of iron ore – enough for 30 years of operation – this 12 million tonnes-per-year project will showcase FINEX® ironmaking process as it helps boost the POSCO global production system to 50 million tonnes by the end of the decade. In 2006, the Edison Preservation Foundation and the Partners for the Future Foundation presented POSCO with an Edison Innovation Award for this process, making one of the first two Korean companies to win this prestigious award. The advanced strip-casting poStrip® process worked out also by POSCO can directly produce hot-rolled flat products ranging between 0.7 mm and 3 mm in thickness. PoStrip® Casting process eliminates the need for intermediate processing to semi-finished products, facilitating significant reductions in capital investment, manufacturing costs, emissions, and production lead-time. In June 2006, POSCO commissioned a 600,000 tonnes-per-year demo plant at POSCO Pohang Works, moving a step closer to adopting this time- and cost-saving process across their product lineup. FINEX® and poStrip® Casting processes are just two examples how POSCO is leading in the World industry forward with innovative technologies.

The achievements of this concern induce to study global achievements of iron and steel industry published in October 2007 in the World Steel Production Report – ISSB Monthly World I&S Review – World Steel Review, October 2007. The information that crude steel production in August 2007 was estimated to be 108.7 million tonnes, according to the 67 countries reporting to the IISI, an increase of 5.9% over August 2006 can be found there. The total for the first eight months of 2007 was 870.7 million tonnes, 7.6% up on the same period in 2006. However, excluding China, the August 2007 total rose by only 1.6%, and the year to date total was up just 2.5%. South Korean production, made mainly by POSCO, increased by 3.4% in August 2007, and by 6.1% in the year to date to 33.9 million tonnes. In the European Union crude steel production for the 27 member states actually fell by 2% in August, compared to August 2006, to 15.2 million tonnes, although the eight months total increased by 2% to 140.6 million tonnes. Imports of steel to the European Union have risen in the first six months of 2007 with increasing amounts coming from outside the EU. German imports were up 25.7% in the first six months with 19% of the total from non EU countries. In the case of Belgium imports rose by 24% with 38% of the total coming from non EU countries. However, in the case of Italy, while imports only rose by 16%, a huge 54% came from outside the EU. 65% of Italy's imports from outside the EU came from China, Ukraine and Russia. The fourth largest supplier of steel to Italy in 2007 was India. In the CIS countries Russian production was 2.3% down in August 2007, bringing the eight months total to 48.3 million tonnes, 3.1% above the 2006 total. Among the key Asian countries Chinese crude steel production reached 41.6 million tonnes in August 2007, up 13.6%, bringing the year to date total up 17.7% to 320 million tonnes. China continues to import iron ore at an increasing rate. In the first 8 months of 2007 ore imports were 250 million tonnes, almost 15% up on the previous year. These imports came from 28 different countries, although Australia, Brazil and India accounted for 85% of the total. On this basis China is likely to import around 375 million tonnes of iron ore in 2007 with a value of US$ 30 million. Chinese steel exports have been dropping in the last few months; from the peak at 8 million tonnes in April 2007, the August 2007 total was 5.7 million tonnes, ca. 29% down. A fall in Chinese exports to Asia accounted for 70% of the total reduction since April 2007. There was also a 10% drop in exports to the 27 member states of the European Union and the Middle East. Indian steel production increased by 8.9% in August 2007, but was down 3.1% to 31.5 million tonnes in the eight months. Japan's steel production rose by 3.7% in August 2007, with the eight months total up 3.9% to 79.4 million tonnes. Taiwanese steel production rose by 4.5% in the month and by 2.5% the year to date to 13.8 million tonnes. Steel production in Iran rose by 2.2% in August 2007, bringing the year to date total up 1% to 6.6 million tonnes. Production in Saudi Arabia increased by 15.7% in August 2007, with the eight months total up 7.2% to 2.9 million tonnes. On the North American continent crude steel production in the USA decreased by 1.4% in August 2007 bringing the year to date total down 3.7% to 65.1 million tonnes. Canadian August 2007 steel production jumped by 27.7%, with the eight months total up 4.3% to 10.9 million tonnes. Mexican production rose by 3.6% in August, bringing the year to date total up 6.9% to 11.4 million tonnes. In South America, Brazilian crude steel production in August rose by 4.5%, bringing the eight months total up 10.6% to 22.1 million tonnes. Argentinean steel production also rose by 4.5% in August, but was down 9% in the year to date to 3.4 million tonnes. However, Venezuelan August production dropped by 19%, while the eight months total fell by 0.8% to 3.3 million tonnes. Production in South Africa, the major steel producing country on the African continent, fell by 7.3% in August, bringing the eight months total down 6.5% to 6.0 million tonnes. Egypt's steel production, on the other hand, increased slightly in August 2007 and by 5.5% in the year to date to 4.2 million tonnes.

Of course, the Polish P.T. Reader is interested in the position of the Polish metallurgical industry against the presented world situation in the analysed period. Then Polish steel production was down 3% in August 2007, but up by 9.7% in the year to date to 7.3 million tonnes. It is ca. 6.71% of the world production and ca. 21.53% of the production of the POSCO concern in the South Korea. Taking into consideration the scale of the world production of crude steel and a huge meaning of that engineering material and all products made of it, there is no doubt that steels are still in the orbit of interests of the scientific society. The exceptional implementation of achievements of scientific and research, engineering and management cadre of POSCO concern points out that those issues are still attractive research area, giving chances for original scientific achievements. I am convinced that there will be no lack of the Polish scientific society of materials engineering in those inquiries. The pages of the next issues of Archives of Materials Science and Engineering are at the disposal of Authors. I invite kindly P.T. Authors to publish their papers and P.T. Readers to read which, I am sure, will be interesting.

Prof. Leszek A. Dobrzanski M. Dr hc
Editor-in-Chief of the AMSE
President of the ACMSSE
President of the WAMME

Gliwice, in October 2007

Thematic scope of papers

MATERIALS

Metallic Alloys, Tool Materials, Superplastic Materials, Ceramics and Glasses, Composites, Amorphous Materials, Nanomaterials, Biomaterials, Multifunctional Materials, Smart Materials, Engineering Polymers

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