

TEESSIDE WORLD EXPOSITION OF ART AND TECHNOLOGY

A speech delivered at MIMA on Art and Technology

25 June 2016



Introduction and Welcome

Thank you for inviting me to this, the opening event of the Teesside World Exposition of Art and Technology. Art and Technology are areas too often held apart. We learn at school to keep these two disciplines in separate parts of the curriculum and this continues into adult life and most particularly in the media, where groups of experts from either discipline exhibit a pride in their ignorance of the other and a sense of superiority at the importance of their own expertise. And yet, in their purest form, the artist and the technologist are driving to the same ends. They both seek truth, understanding, meaning and they both create a means by which this can be revealed to the world, for discussion, criticism and to enhance the lives of others.

As a technologist, as an engineer, I see the art in technology in my daily work. One of the most significant exhibitions of abstract and fantastical art I have ever viewed, was in fact a series of photographs from the Hubble space telescope. These images, beautiful in their own right, showed the swirling mists of space bathed in an otherworldy aura of light. Such cosmic images capture the largest scale in our universe, but there is equal beauty in the smallest aspects of nature. At our Institute we have a range of analytical microscopes, capable of peering into the essence of atoms themselves, where it is possible to see the pattern of crystals in a steel alloy appearing as snowflakes on velvet, or the tracks of dry river beds, through an arid desert.

Steel to Wider Materials

However, this exposition has been called for a specific reason; in response to the collapse of large scale steel manufacturing in this region and quite specifically the closure of Redcar blast furnace and the linking of art and technology is an appropriate way to express and explore this transition. Steel is a material and the link between materials, art and design, is one of close interaction. This is seen quite clearly in architecture, where the imagination of the architect is enabled by the capabilities of the materials in which they work.

Children to adults

We stand here at the Middlesbrough Institute of Modern Art, but the UKs latest addition to artistic space is the extension to the Tata Modern. In all the reporting about this daring new addition to the world's most successful modern art gallery, one aspect dominated – brick. The story that everyone was interested in was the story of the material from which the gallery was built. This is by no means unusual, in the same week, stories were running about the building of a new church in London, the first building in the city to be built from wood since the Great Fire, 450 years ago. The building of a new church in this era is unusual enough in itself, but the story, the interest was all about the material, it was a story about wood. In the car industry, what is the feature of the luxury brands, it was aluminium and now it is carbon-fibre and the newest material of all is graphene.

From brick, to wood, from aluminium to carbon fibre and finally to graphene, the materials of our world shape our world, realise our imagination and enable our progress, but prime amongst these materials, the most abundant, useful, durable and pervasive of all materials is steel.

Steel gives us security and sanitation, it enables transport and trade. Steel is, has been and always will be, supremely important to the lives of all mankind. Everything in the world is made form steel, or with steel. This is why steel holds a special hold over the past, present and future of nations and people.



Contribution of Teesside

We all know why the Teesside steel industry is here, the availability of iron ore, coal and limestone in the locality, combined with natural geographical advantages, made Teesside the ideal location for the birth and growth of the iron and steel industries. From the moment that Marley and Vaughan discovered ironstone in the Eston Hills, the future of Middlesbrough and the Tees Valley, became synonymous with the manufacture of steel.

Much of this captured so evocatively in the work of David Watson, or in the representational style of another local artist, Phillip Boville. Phillip's now famous mural, which for many years dominated the waiting area of the Lackenby medical centre, is a piece I know intimately, as it captivated my attention during many waiting moments, as I am sure it did for hundreds of other working men. I was delighted to hear of its move to the new Redcar and Cleveland Council offices.

In describing the illustrious history of steel production in this region, people talk of the means of production, the blast furnaces and rolling mills. They talk of the amazing products, from the Sydney Harbour Bridge to the rail roads and high rise buildings of America's west coast, but rarely do people talk of the technology and yet in this area Teesside has also been world leading.

My own organisations, the Materials Processing Institute, was established seventy years ago as the British Iron and Steel Research Association, BISRA. Ten days after D-Day, whilst the British Government was focussed on rescuing Europe from the darkest days of war, one small part was planning for the future. They knew they needed iron and steel to rebuild the country and they knew they need research and technology to make it world leading.

From those early beginnings many new technologies that have transformed the manufacture of iron and steel around the world were invented here, in Teesside, at our laboratories. On many occasions the first iron and steel plants to have the technology installed, were our own plants at Redcar and Lackenby. That is why wherever I travel around the world, visiting steel companies, universities and research institutes, the reputation of our region and of our Institute has arrived there long before me.

Future Role for Teesside

There is a danger when considering such a retrospective and when surrounded by such past glories, to imagine that the best days are behind us, but this would be a grave mistake. All of the circumstances that created the initial revolution in steel manufacture in Teesside are here again and there is no fundamental reason why Teesside need be left behind in the opportunities that are appearing in the industry.

I have already explained that steel is a material for the future. It is the most important material we have on Earth, a wonder material that has enabled the rapid progress of mankind, but what we are seeing now in the UK, in Europe and around the World, is the very beginning of a shift in the way in which steel is manufactured. It could take decades, it could take longer, but we are gradually moving away from the manufacture of steel using iron ore and blast furnaces, to the recycling of steel using electric arc furnace technology and flexible, environmentally friendly technology.

To prove the point and to demonstrate the role that Teesside has to play in this future industry, we launched, in February this year, our own steelmaking operation at the Materials Processing Institute. Using the latest technology and manufacturing the only the highest quality steels, we have ensured the continuity of the 170 year history of steel making in Teesside. More than that we are working with our local authorities and the new combined authority,



with Government departments and potential investors, to showcase Teesside as the best location in Europe to attract new investment for the next generation of steel manufacturing. I would also like to encourage those local artists with an interest, to consider also capturing this moment, as Teesside is once again leading the steel industry into a new era.

Conclusion

To return to the start it is a pleasure to be here, at the opening of this exposition and to see the connection between technology and art, the role Teesside has played in shaping the past and how Teesside can play a leading role in its future direction. The flame of the steel industry is still alive in Teesside and by nurturing it with new technology and attracting new investment, we can fan that flame into a new industrial movement. We can also use our expertise to develop and grow other industries, in materials, technology and engineering, in art, design and creative industries. The greatest barrier to making this happen is our own belief in our capability to shape the future. This is the real value of this exposition, in demonstrating to the world what we have achieved in the past and to ourselves, what we can achieve in the future.

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Chris McDonald is the Chief Executive Officer of the Materials Processing Institute. The Institute carries out industrial research and innovation in advanced materials, low carbon energy and the circular economy. Chris's background is in industrial research and manufacturing, where he has worked internationally. He led the divestment and return to independent, not-for-profit ownership of the Institute in 2014, the year the organisation celebrated its 70th anniversary.

In addition to leading the Institute, Chris provides expert consultancy support to companies, Governments and public bodies, in technology strategy and the technical due diligence aspects of mergers and acquisitions. He is prominent in the development of public policy, around innovation, steel and SMEs, where he works to support growth and inward investment. He is the policy chair for Innovation and Enterprise for the Federation of Small Businesses, a member of the CBI Regional Council for the North East and is the Innovation Lead for the UK Metals Council. Chris is also a member of the Steel Advisory Board for UK Steel (EEF).

A graduate of Cambridge University, Chris is a Fellow the Institute of Chemical Engineers and of the Institute of Materials, Minerals and Mining. He sits on industrial advisory boards at a number of universities, including Oxford and Sheffield.

He is often called to commentate in the media on innovation leadership and the steel industry.

Chris McDonald Chief Executive Officer Materials Processing Institute Chris provides expert consultancy support to companies, Governments and public bodies in materials, technology and innovation strategy 9 9





Materials Processing Institute

The Materials Processing Institute is an independent, open access and not-for-profit technology and innovation centre working with industry, government and academia worldwide. Support ranges from small scale, site based investigations, through to long term collaborative research programmes.

The Materials Processing Institute is expert in advanced materials, low carbon energy and the circular economy, specialising in challenging processes, particularly those involving high specification materials, high temperatures and difficult operating conditions.

The Institute has over 70 years' experience as a leading UK technology provider. Extensive materials processing knowledge is supported by state-of-the-art facilities with a broad range of equipment, from laboratories through to demonstration, scale-up and production plant.

Scientists and engineers work with industry and apply their expertise to develop and implement robust solutions to research and development and improvements for products and processes.

Expertise is spread across a wide range of disciplines, including:

- Materials Characterisation, Research and Development
- > Simulation and Design
- > Monitoring, Measurement and Control in Hostile Environments
- > Process Development and Upscaling
- > Specialist Melting and Steel / Alloy Production
- > Engineering / Asset Management
- > Materials Handling
- > Minerals and Ores

Research and project management teams deliver support across a wide range of industrial and manufacturing sectors including:

- > Metals and Metals Manufacture
- > Chemicals and Process
- > Nuclear
- > Oil & Gas
- > Energy
- > Aerospace and Defence
- > Mining and Quarrying





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