

## 2015 Oxford Materials Industrial Tour to Ontario, Canada

We arrived in Toronto in the mid-afternoon on 15<sup>th</sup> March and after collecting our bags, we took the tube to the Canadiana Backpackers inn, one block away from the entertainment-packed Queen Street West. As evening approached, the group unpacked, relaxed and went out for an enjoyable meal in one of the many great restaurants downtown Toronto has to offer.

On the morning of Monday March 16<sup>th</sup>, we walked to the University of Toronto where we were warmly welcomed by Prof. Jun Nogami, chair of the Materials Science department. What followed was an informative tour of the department's various facilities, the majority of which was brand new following a recent \$16



million investment from the Canadian government. Some of the new equipment included a TEM and a SEM machine. Members of five research groups then each delivered short introductory presentations on their fields of research. The research topics included sustainable materials processing, microstructured surfaces and adaptive materials, composite biomaterials and much more. There was a sustainability motive behind each of the projects and this really highlighted the focus on sustainability within the world of research.

In the afternoon after lunch with some University of Toronto students, we departed by coach to Integran, located in Mississauga, ON. Integran is a specialist in nanocrystalline metal coatings. We were welcomed by the CEO Dr. Gino Palumbo and talks by head scientists detailing their operations within the aerospace and high end sports industries. We were also given a tour of their facilities. It was eye-opening to see the production line of a company that does both small-scale testing as well as large-scale production in parallel. After the tours, we took the coach to London, where we checked in at the Station Park Hotel.

On Tuesday 17<sup>th</sup>, we visited Western University and after an introduction from

Professor Ashraf El Damatty the chair of the Dept. of Civil and Environmental Engineering, we received tours of the various facilities available at the university. The highlight of the day was the guest speaker, Professor Billie F. Spencer Jr. who spoke about the monitoring of civil infrastructures.

In the evening, we joined students of Western for a meal and a few games of bowling. This was a great opportunity for our students to socialise with the western students and get a feel for how universities work in other countries.

On Wednesday, we visited the Fraunhofer composite research facilities and WinDEE, both external companies with strong links to Western University. WinDEE has the world's first Hexagonal wind tunnel which allows for complex wind experiments involving different terrains and structures. In the afternoon, we had the opportunity to visit manufacturing giants 3M who own over 3000 patents as well as Trojan Technologies who are a water purification company. In the evening the Vice Provost, Dr John Doerksen, and Associate Dean, Professor Michael Bartlett, of Western University hosted us for dinner. Several professors were present too and this gave us all a good opportunity to gain a personal insight into the research being performed at Western.

On Thursday we returned to the Western University campus and walked to their research park. This is where Surface Science and Lanxess, among other research groups and companies, are located. Both companies gave tours of their work areas and presented us with the motivation and science behind their work. In the afternoon came the most popular industrial tour. We visited the Siemens Wind Turbine Blade Manufacturing Facility. We were hosted by Stuart Thorpe and given a quick talk and safety briefing before being given a tour around the site. Siemens manufacture both 49 and 55m blades. It was incredible to see first-hand and up close the massive production line and the technology, planning and skill it takes to produce such large products both consistently and quickly.



On Friday, we had the day free to look around London. We found the river Thames and the Covent Garden Market, which made us feel very at home! In the evening, we got to experience an essential part of Canadian culture – Ice Hockey! We went to Budweiser Gardens Stadium to watch the local London Knights beat the Saginaw Spirit 8 – 6. We were kindly hosted

by the Mayor of London. We had a great time and by the end we were all joining in with the cheering and celebratory dances.

On Saturday morning we travelled back to Toronto and settled back into the hostel. We then had the afternoon off to explore Toronto, which was exciting after such a brief visit earlier in the week. Toronto was such a modern and interesting city with so many diverse areas to explore such as China Town and the Distillery District. A group of us spent the first afternoon walking around the Harbour Front before heading up the iconic CN Tower. As the 3<sup>rd</sup> Tallest Tower in the world the views were as stunning as you would expect. We could see all the way across Lake Ontario and Downtown Toronto. We decided to stay at the top of the tower to watch the sunset which was a truly once in a lifetime experience!

Sunday was a free day to explore Toronto and we had a great day getting to know the city! We visited the bohemian Kensington Market and walked around the historic Distillery District. We had a great dinner in China Town to finish off the day.



On Monday, we left for Niagara Falls, excited to see this famous site! We arrived and were stunned by the scale and power of the falls! It was very cold but this did not dampen the impressive views. We then travelled to a local vineyard and sampled Ice Wine, a local desert wine, made from frozen grapes. In the evening we had one of the highlights of every tour – the tour dinner! We all headed to a local Italian restaurant and had a great evening. The food was fantastic and everyone enjoyed reflecting on the memories of the trip.

On our final day, some students went to one of the local outdoor ice rinks to try their hand at Canada's national sport! Others went to visit St. Lawrence Market, one of the largest food markets in the world. In the evening we sadly had to get our flight back to London.



We had a fantastic time in Canada. We learned so much about materials science in industry, experienced a new culture, explored an exciting city and met some great people.

Feedback from the students:

“The host students were really friendly and it was interesting to compare our studies to theirs. Visiting Siemens was really cool and it was fascinating to learn about the Wind Turbine production process. Intergran was really interesting and it was great to see the things we'd learnt about in our course in action in industry. It gave me ideas about where I might like to work in the future and the sort of work I'd like to do.”

“I greatly enjoyed our industrial visit to Canada, it was a once in a lifetime experience and I'm glad I went. The industrial visits helped me relate our degree into real life and were extremely educational and interesting. It helped me figure out what kind of thing I'd be interested in after my degree. On top of this, experiencing the different culture and speaking to the students in Toronto and London was eye opening as they have a different education system.”

“I thought the trip to Canada was an extremely enjoyable experience and it really opened my eyes to the wide range of different employment options available. The industrial visits were really interesting and were a valuable opportunity to observe the real world applications for my degrees, and they definitely inspired me to pursue a future career in Materials.”

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