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Liquid Crystals Today

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Liquid Crystals Spanning the Globe

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PEOPLE IN THE NEWS

Liquid Crystals Spanning the Globe

Liquid crystal research is increasingly an international activity, often involving collaborations between groups and laboratories separated by great distances and cultures. Bridging these gaps is an important part of scientific activity and below we report the experiences of two young scientists from the UK who travelled to Japan to further their research.

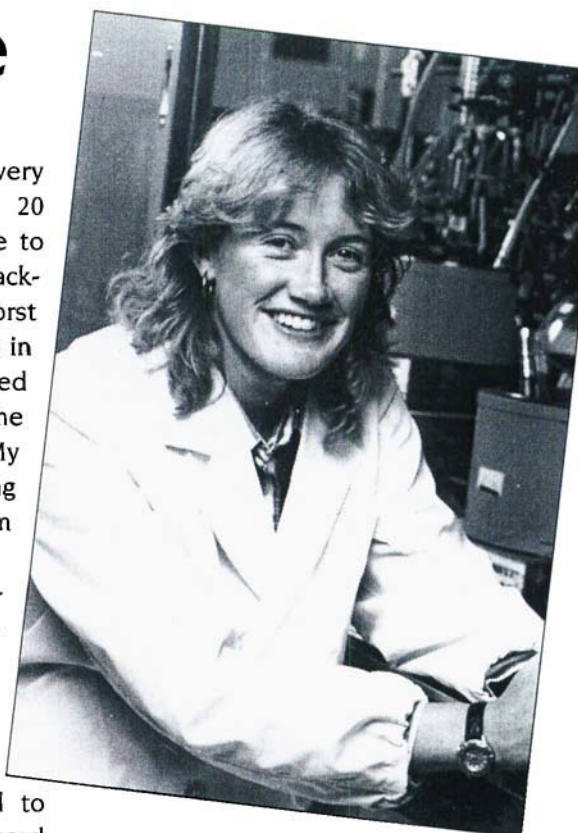
In January 1995, I arrived in Hitachi-shi to start a one year post as a Visiting Researcher at Hitachi Research Laboratory in Ibaraki prefecture. Hitachi city, an industrial port, has a population of 250 000 and is pleasantly situated between the mountains and the sea. I lived in a company owned and subsidized self-catering ladies dormitory next to the Pacific Ocean. The first few trips to the supermarkets proved interesting: I now know how people who can't read feel. In the first week I collected my hanko, a stamp used in place of signatures on official documents. The three kanji characters that made up my name apparently translated to 'blossom blowing in the wind girl' or so my manager told me.

So I began life at the company as geijin Farrandsan. Contrary to popular belief not many people exercised in the morning but the music was played over the loudspeakers just in case you had

the urge. Japanese offices are very large and contain at least 20 people and it took some time to get used to the constant background noise. However, the worst scenario was if I was left alone in the office and the phone started to ring; this did give me the incentive to learn Japanese. My co-workers were very welcoming and kind, and many of them spoke good English.

My research involved molecular modelling, organic synthesis and physical property measurements of new dopants for TFT-TN LCDs. Most of the computer software used Japanese characters so I had to memorize a lot of keyboard responses during the running of PC controlled experiments. The synthetic work was undertaken in a clean room and this was quite different to the work environment I was used to. There were strict rules for carrying out reaction procedures regarding potential electrical and earthquake hazards. The clean rooms which housed the measuring equipment were excellent. Other researchers made display panels in these laboratories and so the dust level was kept at an absolute minimum by meticulous cleaning every day.

I usually worked regular 8 hour days but all the permanent employees worked much longer hours. The Japanese were proud to work hard for their company and the company took care of them in return. This may partially explain the greater than 80% market share of LCD production which Japan boasts. After company successes, it



was usual for the group to go and celebrate after work. Typically, this involved a great fishy meal, washed down with saké and good Japanese beer followed by a further party at a karaoke bar. The research group was a community within itself. 1995 was an exciting year to be a part of the Hitachi group which announced the In-Plane Switching Mode Device with wide viewing angles. I am indebted to Katsumi Kondo who allowed me to experience life in a Japanese company and to my fellow researchers who worked to overcome the communications barrier in many different ways.

LOUISE FARRAND

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Photograph at top of page: Louise Farrand



'Taking God to the fish'

Each year the British Council, in conjunction with JISTEC it's Japanese equivalent, awards four scholarships to British research students in the fields of Science, Engineering and Technology. Their aim is to foster links between the East and West by giving the students a unique insight into Japanese industrial research. Last summer I was lucky enough to be awarded one of these grants and given the opportunity to spend 9 weeks near Tokyo, where I completed a short research project at Sony Corporation.

As a PhD student at the University of Manchester, studying with Helen Gleeson, my interest lies in the switching dynamics of ferroelectric liquid crystals. Specifically, we use time-resolved X-ray diffraction to investigate the layer deformations during switching. Working as part of Sony's FLC group in Yokohama I was able to complement this work by carrying out a study of molecular motion during switching using time-resolved FT-IR spectroscopy. The project was extremely successful and we are in the process of publishing our results.

During my free time I was able to

escape from the vast crowds of Tokyo and explore a more traditional Japan. I made the night-time pilgrimage to the summit of Mount Fuji to watch the sun rise through the clouds, I visited countless temples, pagodas and shrines in the cities of Kyoto, Nara and Nikko and hiked across the crater of a live volcano in Northern Japan. With only five days of language tuition behind me there were many times when communication was a challenge, and it was amazingly easy to get lost – but a friendly face always seemed to turn up in the end.

In one particular rural village I was invited to join in the local religious festival and help them carry their offering around the village to bring good luck the following year. In the photo you can see us 'taking God to the fish' as it was described, despite the fact I was too tall to be of any use to them they were quite happy to have me join in. Quite an experience !

GEORGINA K. BRYANT
University of Manchester

Letter to Editor

We are an university institute doing applied optical research using liquid crystal displays. Therefore, we are interested in new spatial light modulators for our holographic applications.

Our problem is that it is nearly impossible to get such LCDs (AMLCD, STN-L TN-LCD) on the German market or from the German distributors of Sharp, Hitachi, Seiko, etc. These displays are only delivered as OEM-products from company to company in large quantities. On the other hand, there are a lot of advertisements in electronic and optical magazines about the newest LCDs from Japanese, Chinese, and American companies or manufacturers. Unfortunately none of our telefax requests have been answered by a tender.

Could you please tell us their telephone or fax numbers. If their are other manufacturers or helpful contacts to our problem, please tell us of them.

We are mainly interested in LCDs with the following features:

- high resolution display, i.e. $\geq 420 \times 250$ pixels
- screen size: smaller than 25 mm (diagonal)
- monochrome, 256 grey values
- high transmission rate
- digital addressability or VGA-driver (option for a video signal)
- planarity of the surfaces (for coherent experiments)
- range of phase modulation

Would you please kindly help us. Please communicate with us soon. Many thanks in advance.

Yours sincerely

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Editor's Note: It seems that there may be many small markets for LC devices which are yet to be satisfied.