

# HOLOGRAPHY GROUP

## CHRISTMAS NEWSLETTER DECEMBER 2006

### Editorial

The time has come round again to wish you all the very best for Christmas and the New Year. I apologise for taking so long to produce this Newsletter, but as some of you will know, a knee replacement job I had in May became infected. It has taken until now to clear this up, leaving me more or less housebound, with little opportunity for newsgathering. I did manage to get to the Symposium at OpTIC Technium for most of one day, and it was heartening to renew old acquaintances, especially those from overseas. Bob and Molly Gibson were there throughout the proceedings, and they report their impressions in this issue. It was sad to hear of the death of Yuri Denisyuk, so soon after that of Emmett Leith, and, earlier of Steve Benton: all three had originally been scheduled to speak at the Symposium. Fortunately for posterity, Sean Johnston, in preparing his history of holography, was able to interview all three of them at length. Although I was disappointed at missing the Symposium, there is the consolation of a full record of the proceedings in both CD-ROM and print form (the book is beautifully produced). I understand that the concurrent exhibition of holograms was much admired, too. Jonathan Ross, who was responsible with Martin Richardson for staging the show, writes in this issue.

The most important item of news this year has been the emergence of new holographic materials, representing a step forward in ultrafine grain silver halide emulsions. In fact, the withdrawal of Agfa from the field may prove a blessing in disguise, as the new materials produced by Fuji and others represent a considerable improvement in quality, though for a time creative and commercial holographers had to get by on ever-dwindling stocks of Agfa materials, and many practitioners left the discipline altogether. But no doubt creative holography is beginning to see a renaissance. And on that optimistic note may I again send you all the season's greetings.

Graham Saxby

### **Seventh International Symposium on Display Holography, St Asaph, Wales**

**The big thing about all these Symposia has been the general camaraderie, the renewal of acquaintances, the making of new ones, and an endless opportunity to talk shop. The participants this year may have had to miss the atmosphere of Lake Forest with its fine old buildings and vast lawns (and occasional violent thunderstorms), but though there may have been no beach to party on, there were plenty of other things to do; and for the British participants the train to Rhyl proved**

a good deal less costly than a flight to Chicago. Also, instead of our having to wait months for the proceedings, they were available on the first day, both on disc and as a bound book with Iñaki Beguiristain's splendid Welsh dragon image on the cover. The publication of the Proceedings was in the capable hands of Kaveh Bazargan, and you can get copies of both the disc and the printed version via his website [www.holographer.com](http://www.holographer.com). There are many interesting papers in it, in particular details of the new holographic materials Fujifilm, DESA, BBPan and the updated Slavich emulsions, as well as progress reports on DCG and photopolymer materials. Nils Abramson presented his latest ideas on an approach to relativity theory using holographic concepts; Tokyo Metropolitan College discussed progress in holographic video and the wireless transmission of holographic images; J J Cowan updated us on his 'Aztec' system for embossed reflection holograms; and T Hart of Hart Coating Technology delivered a didactic paper on the electroforming of shims for embossed holograms.

The day I managed to attend was given over mainly to 'fine art' imagery – perhaps not the best day for someone interested chiefly in progress in technology and technique. To my way of thinking a visual image should carry its own message, with long verbal descriptions (apart from those describing any special techniques) redundant. Although some of the artists' comments were indeed relevant and interesting, in some cases I would have preferred to look at the projected images in a silence broken only by the whirr of the projector fan. The description of a novel technique is a different matter, of course; it was fascinating to hear Rob Munday's account of the technical problems he and his team had to overcome in making the holographic portrait of the Queen – and the way they succeeded in overcoming them. As a result of their discoveries we can look forward to a new generation of holographic stereograms with greatly improved drawing and overall quality, not to mention the 3-D photographic versions and quasi-sculptures that have spun off the project. The session concluded with Pascal Gauchet's explanation on the optics of opals, a fascinating presentation that unfortunately doesn't appear in the Proceedings.

Our Chairman Hans Bjelkhagen and his back-up team deserve the highest praise for organising a successful Symposium that keeps up the high standard set over the years by Tung Jeong's team at Lake Forest. Hans told me, though, that it involved such a heavy workload that he would be reluctant to take it on again. A call for volunteers for the next Symposium?

Graham Saxby

# The RPS Annual Awards

For the RPS the Awards Ceremony is the event of the year. It usually takes place in the main lecture theatre of the Royal Institution, familiar to those of you who watch the irresistible Annual Christmas Lectures on television. For a number of years the show has been MC'd by the indefatigable Ray Clarke, former RPS president, who introduces each recipient with a PowerPoint presentation of their achievements. After the ceremony there is a reception – more of a party – where everybody has a chance to meet the heroes of the day over a canapé and a glass (or several glasses) of wine. This year it was held in the RIBA HQ as the RI was being refurbished. Being still housebound I had to miss the event this year, but I understand that it went with the usual bonhomie.

One of the awards is for progress in three-dimensional imaging: as I sponsored it originally it carries my name (I agreed to this with some reluctance). As most of the recipients have so far been associated with holography, there is usually strong support from our Group. This year the recipient was Steve McGrew, one of the pioneers of DCG, developer of the pseudocolour process and inventor of the embossed hologram. It was disappointing that only two members of the Group were present to show the flag: I hope there will be a better turnout next year.

Each year, almost immediately after the ceremony, the Awards Committee begins to look for proposals for Awards for the following year. Some of the awards receive a number of nominations, and those who don't make it are usually considered again the next year, so it doesn't matter how many names are suggested. Anybody, not necessarily an RPS member, can nominate one or more persons for any of the awards (there are more than a dozen). You don't need to send a full CV of the person you nominate: a brief account of why you think him or her a suitable choice will do. You can get full information and a nomination form from Jo Macdonald at the RPS in Bath; there is also a leaflet telling you what each award signifies. Sometimes there is a shortage of nominations: I am asked almost every year to urge Group members to put forward nominations for these Awards, particularly the Saxby Medal. When I first proposed this Award, the Committee required me to furnish a list of possible nominees, and I provided some thirty names – not just holographers, of course. It would not be proper for me to nominate anybody myself, of course, but as I am familiar with the contributions of many people working in 3-D imaging, I would be happy to furnish details if asked.

Graham Saxby

# **Yuri Denisyuk, 1927-2006**

The last of the founding fathers of holography has now been taken from us. Still actively engaged in research until his final illness, Yuri was the epitome of the dedicated scientist. Whereas his opposite number Emmett Leith was backed up by an active research team with Government backing, Denisyuk pursued his research alone, and unaware of any other work in the same field. Guided only by a suggestion made by Gabriel Lippmann sixty years earlier, he produced the first volume reflection holograms amid apathy and even hostility. His work became appreciated in the Soviet Union only when the usefulness of holographic images of the priceless possessions of the major museums for travelling exhibitions began to be appreciated. The technique required was so simple that it could be (and still is) demonstrated in ordinary school labs.

Denisyuk's first visit to Britain was in 1978 to receive the RPS Progress medal (our highest honour), and the shy and self-effacing scientist found himself the centre of attention at academic establishments such as Imperial College, with its active optical research department. Thereafter he was a regular attendant at conferences in the West, forming many warm friendships. He continued his innovative research, working on non-reference beam holography, right up to his final illness. He died just short of his 79th birthday, after a steady decline in health – coincidentally at almost exactly the same age as Emmett Leith.

Graham Saxby

## **The Bodelwyddan Castle Holographic Exhibition**

Staging an exhibition of holograms is a challenging experience; the one I was invited to organise in conjunction with the Seventh International Symposium on Display Holography was my largest to date. For myself, almost any opportunity to exhibit holograms is worth taking, so when Hans Bjelkhagen invited me to stage an exhibition in Wales, I didn't hesitate. The venue, just a few miles from where the symposium was taking place, was Bodelwyddan Castle, a fine example of Victorian Gothic architecture and now an outstation of the National Portrait Gallery – quite a prestigious location. Hans, Martin Richardson & I made an initial reconnoitre of the castle, and their temporary exhibition space looked extremely promising. The first thing I look at in any potential gallery is always the existing lighting, to see if it can

be adapted for holographic purposes. In this case there was a track system that looked as though, with a few extra lengths of track, it could provide suitable reference angles for quite a variety of holograms. I was able to identify only one area where transmission holograms could be placed, so the majority of exhibits would, as in most exhibitions, have to be reflection or mirror-backed white light transmission holograms.

The exhibition space was a sequence of adjoining rooms with some tracks close to the walls, but others down the centre of the interconnecting corridors that could provide roughly 45° illumination. The gallery usually shows paintings or drawings, so all the light fittings they had were floods, unsuitable for displaying holograms. It was clear that we would have to provide our own lights, and as there were to be seventy holograms in the show this could be a major expense. Martin approached Concord Marlin (whose lights I have used for many years), and found them more than willing to provide the required lighting. We visited their London showroom and picked out some suitable lights, and I then returned to make a selection of holograms to show.

We had no budget to import overseas work, so the majority of the exhibits needed to come from my personal collection. Eventually, I provided 50 pieces, a further 20 being borrowed from holographers attending the Symposium. I wanted to make the exhibition as representative as possible of what artists have achieved with holography, so there was a mixture of still life, portrait and abstract works, in monochrome, pseudocolour and true colour, both CW and pulsed laser holograms and stereograms. The earliest images were Steve Benton's classic WLT pieces 'Crystal Beginning' and 'Rind II' and the most recent some large-format digital pieces by the Lithuanian company Geola and some knockout examples of Inaki Beguiristain's consummate pseudocolour holograms.

July arrived, and I spent several days packing the holograms for transportation. The most fragile pieces were wrapped in tissue paper then in bubble wrap, before being placed in boxes and surrounded by polystyrene granules. The larger works were packed individually and strapped to the inside of the van for the four-hour drive. I sorted out my toolkit, stocked up on screws, mirror-plates, wire cable etc., and tried to think through all the things that might come in handy for tricky installation problems.

When we convened in Wales, Martin and I discovered that many of the lights from Concord had not arrived and a large proportion of those that had were floods, not what we needed at all. Fortunately, we found that we could remove the front diffuser glass, effectively making them spots. Outside contractors arrived and installed several lengths of track to supplement the gallery's system. Eventually the remainder of the lights were delivered, and we installed them on the tracks. By that time I had all the holograms in place ready to fix to the walls. To give unity to the show I had reframed many of the pieces in simple black aluminium mouldings; most of the others were in black wooden frames. Mirror plates are the preferred means of fixing in most galleries. When you have two experienced people, hanging holograms can go fairly quickly. One person holds the piece while the other determines the height and marks the screw holes. Then one drills and the other puts in the screws. Ideally all work is hung so that the centre is at an average eye level, which I take as 62 inches, or a little under 1.6 m, from the ground. If you can do that along a whole wall it makes for a consistent looking display. But not all holograms have the same reference angle, so if all the lights are on

a track, say 1 m from the wall, you may have to raise or lower the hologram or tilt it a little to achieve the correct angle. Strips of foam core or polystyrene, or the little rubber spacers you can get from glass merchants, all come in handy. At Bodelwyddan the gallery walls are all lined with a 2.5cm thick board called Fermacell, into which you can screw directly without using plugs. It is also easy to fill and redecorate after the exhibition. The transmission holograms in this show all had holes in the glass or frame to take hanging cables, so I looped thin steel wires through these and secured them with fixings from a ship's chandler. The other end of the cable was looped through a screw eye and attached to a wooden baton fixed to the gallery ceiling. To my way of thinking a perfectly installed WLT hologram is the best type of holographic display, as the image is just suspended there in space, and the intense rainbow colours do something delightful to my serotonin levels.

Each hologram had, of course, to be captioned in both English and Welsh. I had already supplied the text for the main panels, explaining the content of the show in simple layman's terms, so the Bodelwyddan curator, Morrigan Ellis, was able to have it translated and professionally printed in large format onto foam core boards. These were attached to the gallery walls using Velcro strips. The captions for individual works were produced in-house and were the last to go up at the bottom left of each piece, secured with Blu-tack. Finally, I checked the lighting on each piece, adjusting the angle of the hologram as necessary, and cleaned the glass where fingerprints were visible. 'Do Not Touch' signs were placed prominently around the exhibition, but gallery staff were instructed to check for fingerprints daily, as the temptation to touch a hologram is for a first-time viewer often too much to bear.

The gallery staff were extremely enthusiastic about the exhibition, and it seemed to go down well with the public, as at the end of the run the Visitors' Book was filled with gratifyingly complimentary comments. Holographers attending the symposium were themselves enthusiastic, so the hours of planning and installation were well worth while. I am passionate about collecting holograms; and being given the opportunity to show my collection is the ultimate endorsement of that commitment. I look forward to many more exhibitions in the years to come.

Jonathan Ross

More information about the Bodelwyddan Castle exhibition and the Ross collection can be found at <http://www.jrholocollection.com>.

## **Outside the Lecture Theatre at St Asaph**

Since we had never been to any of the international symposia at Lake Forest, we thought we would go to St Asaph in July and find out what went on. This is, therefore, not a review of the papers given, which can be seen in the Proceedings.

Delegates were scattered in various hotels all over the small town, but we parked our caravan at a site a few miles away and went in by car each day. We managed to register on Monday morning at the OpTIC centre, a beautiful modern, eco-friendly building, and were given a lap-top bag each, containing the program for the week, together with an assortment of other useful things. Lunch was provided each day in “The Street,” a broad corridor running almost the full length of the building, where long tables had been set up.

The first evening we were invited to a barbecue at Oriel house, sponsored by Denbighshire County Council, who had provided yet more goodies. The next evening we were taken by coach to Jonathan’s exhibition of holograms in Bodelwydden Castle, a very crowded but enjoyable party, where taking photographs of the exhibits was all but impossible.

We were delighted when Graham arrived on Wednesday, having journeyed by train and taxi; the day was given over to Art Holography, and included a very interesting insight to the making of the hologram of the Queen, by Rob Munday and Jeff Robb. In the evening there was an art forum, chaired by Fred Unterseher, who remarked that “Getting holographers to do anything was like trying to herd cats!”

On Thursday morning, some of us were shown round the optical laboratories, where Hans produces his holograms using a most impressive array of equipment; we also admired the amazing collection of goods, ranging from sticking plasters to corn flakes, which had been packaged using holograms. That evening we all departed by coach to Ruthin Castle, where we donned fancy dress and enjoyed a Mediaeval Banquet, hosted by the Noble Lord Hans and his charming Lady. I have no idea what some of the far eastern delegates to the conference made of the lack of cutlery and strange table manners, but the mead seemed to be much enjoyed.

The conference ended with a session on the business aspect of holography, after which we were given a Welsh Farewell and lunch in The Street, before saying our farewells and departing.

Bob and Molly Gibson.

The Department of Partly-Baked Ideas is held over to the next issue because of lack of space [in the printed edition - Web Ed].