

book review

Reviewed by Jonathan Ross

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Holographic Visions: A History of New Science

Sean F. Johnston, University of Glasgow, Oxford University Press,
518 pages with numerous b&w illustrations, £75 (from £50.26 on Amazon),
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About the reviewer

Jonathan Ross was involved with commercial holography from 1978–1990 with his company SEE 3. He has compiled one of the most extensive collections of the art and applications of holography, (www.jrholocollection.com) and is a sucker for 3D images of all sorts. He exhibits his collection in public spaces whenever possible and stages regular holography shows, along with other forms of contemporary art, at his Gallery 286 in London, England.

Overview of the book

For someone who has been occupied with holography for almost 30 years in a variety of ways, it is gratifying to see its nearly 60 year history written and between hard covers. Of course there have been numerous potted histories before, in catalogues, text books and on websites, but no one has attempted such a thorough or well-researched treatment previously. A historian of science and technology, and an optical physicist, Sean Johnston was clearly the man for the job.

At the beginning of this book I counted 81 acknowledgements. Johnston personally interviewed 50 assorted researchers, artists and entrepreneurs and consulted another 55 sources. The bibliography occupies 41 pages at the rear of the book and must represent untold hours of reading. The index stretches to 28 pages and is a veritable Who's Who and What's What of holography.

Johnston's timing was fortuitous. Most of the founding fathers of holography, with the exception of Gabor, were still alive while he was doing his research and he was able to question them face to face. By the time of publication, Benton, Leith and Denisyuk had died and a chapter in holography's history was over - a good moment, perhaps, to reflect on the past and assess the successes and failures of a still developing medium.

In his Preface, Johnston raises the question "Why attempt a history of what some still see as an immature subject?" and answers that "One reason is because notions of maturity carry questionable assumptions. Holography is a young science that illustrates how new subjects come to be. It provides answers to questions such as, How does a scientific subject materialize? How does its content stabilize? How do those who practice it come to recognize themselves as a distinct group? And how do its definitions and products depend on their environments?" He goes on to say that "This visionary

subject exemplifies how science, technology and wider culture are woven inextricably in the modern world”.

Later, Johnston observes that “Like the multiple perspectives offered by the hologram. . . each community had a different vision of its problems and potential and each shaped a history and forecasts to fit”. Depending on your interest in and involvement with holography, different parts of this book may fascinate you more than others but Johnston has explored all its aspects in depth.

The book is divided into four parts envisaging the development of holography as

1. An intellectual subject
 2. A visual medium and scientific technology
 3. A social practice
 4. An economic and cultural activity
- Creating a Subject—examines the origins of holography in Britain, the Soviet Union and America and argues that it was the particular post-war context of science and industry, combined with a spirit of military exploration in the context of the Cold War, that explains the nurturing and flourishing of the original ideas.
 - Creating a Medium—focuses on the boom years of 1964–1973 and the frenetic research to extend the technical capabilities of holography.
 - Creating an Identity—explores the disparate elements that came to call themselves holographers: Scientist-engineers, fine art or *aesthetic* holographers and *artisanal holographers*. The latter coming from ‘a distinct counterculture community to transform the subject during the 1970s with radical methods and goals’.
 - Creating a Market—focuses on the commercial sprouting of holography alongside its popular understanding and the co-evolution of both the cultural meaning of holograms and viable commercial products.

My personal involvement with holography begins with the third section so, while I was familiar with many of the names at the beginning of the story, I had not seen their origins and interactions plotted so clearly.

Johnston takes us to an industrial electrical lab in Rugby, England where Dennis Gabor worked for British Thomson-Houston and conducted his original research, to a state scientific institute in Leningrad, USSR where Yuri Denisyuk did his, and to a classified research lab in Willow Run, Michigan, USA where Emmett Leith and Juris Upatnieks made the breakthrough that led to holography as we know it. We meet George W. Stroke, Professor

of Electro-Optics at the University of Michigan, an uncongenial figure who constructed the first historical summary of holography and arguably its earliest and most influential packaging. He was influential in the awarding of the Nobel prize to Gabor in 1971 and denying the prize to his Willow Run rivals. (This is possibly the most controversial story to emerge from Johnston's research).

We see inside the Conductron Corporation who were the first to commercialise holography and meet Kip Siegel the manager whose realisation that what one had to do to make money from holography was "to sell the promise of technology to investors" became the blueprint for many holography entrepreneurs to come. It was there in the late 1960s that mass produced holograms (500,000 laser transmission copies on film for the 1967 Science Year publication) first happened and that an artist, Bruce Nauman in 1968 and Salvador Dali in 1970, had their first chance to use the medium.

It is around this period that we first meet Lloyd Cross, an early worker with pulse lasers, whose subsequent activities as a teacher at the San Francisco School of Holography and manufacturer of holograms at the Multiplex Co would introduce holography to a wider world of artists and entrepreneurs.

Steve Benton makes his first appearance at Polaroid, under the relaxed regime of Edwin Land, and his invention of the rainbow hologram, adopted by artists and eventually commercialised as the ubiquitous embossed hologram, combined with his fostering of a spirit of communication through conferences and collaborations with artists, gets the recognition it deserves. Tung Jeong from Lake Forest College, who taught many workshops and hosted many conferences and Jerry Pethick, who conceived of the sandtable as a way of making holography accessible, are two other names that stand out from the early days.

As holography begins to move further into public consciousness we see the growth of exhibitions and museums, led by Posy Jackson and Jody Burns at the Museum of Holography in New York and later Matthias Lauk in Germany, the subsequent burgeoning of galleries and cottage-industry display holographers and the reluctance of the artworld to accept holography. We encounter Steve McGrew, Ken Haines and Mike Foster who give birth to the hologram embossing industry in the USA and Nick Phillips and Jeff Blyth who kick-start reflection holography in the UK. Testimony is heard from Jim Trolinger, Bill Fagan and others involved in the non-destructive testing applications of holography.

Women feature prominently in the development of art holography so we are introduced to Margaret Benyon, Harriet Casdin-Silver, Anait, Edwina Orr and Eve Ritscher amongst others.

This is not just a tale of relentless progress, however. Johnston recognises that there have been dead-ends and failures too and recounts the falling off in popularity of various aspects of holography.

The insider stories make fascinating reading and brought the book to life for me. As a non-scientist I cannot vouch for the accuracy of all the technical elements of the book, though nothing stood out as inaccurate, but the chapters that dealt with the entrepreneurs and artists in holography seemed to illuminate the whole picture very evenly. Doubtless there will be individuals who feel that their contribution to the story has not received sufficient attention (I was surprised not to see a mention of Walter Clarke as a business man or collector, for example) but I am sure that most would commend Sean Johnston for his thorough and wide ranging history.

Johnston writes well and tells the story persuasively in a way that should appeal to those interested in the sociology of science as well as to holography insiders. There are plenty of amusing passages as the urban myths and popular misconceptions about holography are identified and some of the wideboys and eccentrics attracted to holography make their appearance, and there are moving moments too as when Leith and Denisyuk finally meet in 1989 at the end of the Cold War and share a car journey: "The two, having travelled the same road half a world apart, could do so together at last".

For the second edition, the misspelled 'Agfa-Gavaert' should be amended to 'Gevaert' and Pim Giebels would probably rather not be addressed as 'Goebbels', but in two readings I did not recoil at any howlers and could not imagine that any of the protagonists would be offended at the way their story has been told.

I think that Johnston has served the holographic community very well and deserves our support. I would hope that at least everyone whose name is in the index buys a copy, and a lot more too. And for all those with an interest in what holography might become, I would suggest that by reviewing the past we are perhaps more able to imagine the future.